DOCUMENT RESUME

ED 119 547 HE 007 240

AUTHOR Keene, T. Wayne
TITLE A Study of the Feasibility of Implementing the "CAMPUS" Planning Model.
INSTITUTION University of South Florida, Tampa. Coll. of Education.
PUB DATE Jul 74
NOTE 87p.

EDRS PRICE MF-$0.83 HC-$4.67 Plus Postage
DESCRIPTORS Budgeting; *Campus Planning; Costs; Curriculum; *Data Collection; Educational Finance; Educational Planning; Enrollment; Enrollment Trends; Facilities; Faculty; *Higher Education; Institutional Research; Management; *Models; Organization; *Resource Allocations

ABSTRACT

A study was conducted to determine the feasibility of implementing the CAMPUS (Comprehensive Analytical Methods for Planning in University/College Systems) PMS model for planning and resource allocation purposes in the University of South Florida College of Education. A description of CAMPUS PMS was developed, including the nature, output provisions, component structure, and file input requirements of the model. Model provisions and constraints were developed. Recommendations were in terms of adoption, funding, organizational participation strategy, and phase-in timetable. Feasibility criteria included management utility such as enrollment forecasting, curriculum/staff/facilities planning, financial planning/budgeting, and indirect benefits; technical characteristics such as model dimensions vs. computer capabilities required, and adaptability and flexibility; implementation considerations such as cost and time requirements for implementation, staff availability, and organizational impact dynamics. Appendices include implementation procedural steps, data elements in existing institutional operating files relevant to simulation models, and typical synthesizing reports on institutional operations.
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A Study of the Feasibility of Implementing the "CAMPUS" Planning Model

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by

T. Wayne Keene

ABSTRACT

A study was conducted to determine the feasibility of implementing the CAMPUS PMS model (by Systems Research Group, Toronto, Canada) for planning and resource allocation purposes in the University of South Florida College of Education. A guiding principle was that the study should serve as a model for assessing feasibility of other simulation models for planning, managing, and evaluation purposes.

A description of CAMPUS PMS was developed, including the nature, output provisions, component structure, and basic file input requirements of the model. Model provisions and constraints were developed. Current college operations were compared to the model's requirements in terms of curriculum, enrollment, faculty and other staff, space and facilities, finance, and organizational structure. Discrepancy between current college operational status and CAMPUS PMS requirements was considered using discrepancy analysis procedures. Costs were analyzed in terms of recurring and non-recurring nature. Other considerations studied were organizational personnel dynamics, availability of competent staff, MIS adequacy, indirect benefits, and implementation experience of the model.

Recommendations were in terms of adoption, funding, organizational participation strategy, and phase-in timetable. Feasibility criteria included management utility such as enrollment forecasting, curriculum/staff/facilities planning, financial planning/budgeting, and indirect benefits; technical characteristics such as model dimensions vs. computer capabilities required, and adaptability and flexibility; implementation considerations such as cost and

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time required for implementation, staff availability, and organizational impact dynamics. Appendices include implementation procedural steps, data elements in existing institutional operating files relevant to simulation models, and typical synthesizing reports on institutional operations.

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By

T. Wayne Keene

Center for Educational Policies Study
College of Education
University of South Florida
July, 1974

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1.0. INTRODUCTION

1.1. Mission of the study

The mission of this study is to determine the feasibility of implementing the CAMPUS (Comprehensive Analytical Methods for Planning in University/College Systems) model for planning and resource allocation in the University of South Florida College of Education.

1.2. Background

1.2.1. The University of South Florida

The University of South Florida was founded December 18, 1956. It was the first major state university in the United States planned and built entirely in this century. In addition, it was the first state university in Florida located purposely in a major metropolitan center. The first students, about 2,000 headcount (about 1,450 full time equivalent [FTE]), were enrolled in September of 1960. By the fall term of 1973 enrollment had reached approximately 16,500 FTE, freshman -- doctoral levels. In the same period, the number of colleges had increased from 4 to 9. The number of degrees awarded increased from 2 bachelors in 1961-62 to 3,490 bachelors, 788 masters, 1 specialist, and 4 doctorates in 1972-73.

The mission of the university is intended to be expressed generally in the statement, "The University of South Florida from its beginning has sought to apply the talents of its scholars and students to the peculiar ills besetting modern man. In this way, USF has sought to accomplish the special mission ··· set out for it in the Comprehensive Development Plan (CODE) of the State University System of Florida (1969): The creation and development of programs oriented toward the solution of problems peculiar to the modern urban environment."[1]

1.2.2. The College of Education

The College of Education was one of the original four colleges comprising the University. It enrolled 92 FTE students in the fall term of 1960 and had 4 FTE faculty. By the fall term of 1973, enrollment had reached approximately 3,300 FTE (based on course level rather than student classification level), including off-campus and St. Petersburg branch campus. Faculty had increased to approximately 178 FTE.

The first degrees (2) earned at the University of South Florida were bachelors from the College of Education in the year 1961-1962. The college in 1964-1965 also awarded the first master's degree from the institution. During 1972-73 the college awarded 1,180 bachelors, 478 masters, 1 specialist, and 1 doctorate. The number of college course areas increased from 2 upon opening in 1960 to 19 in 1973-74.

The overall mission of the College of Education is indicated in the following statement from the document, Seven Year Program Plans 1974-1981:

> With an interaction among teaching, research, and service, which should characterize its work, the College of Education has adopted the following goals (or missions) which are stated in priority order. In the conduct of these missions the College will improve the opportunities for minority persons to prepare for careers as educational personnel.
>
> 1. To improve the quality of schooling in the twelve counties of the service region through the continuing education of "key" school personnel.
> 2. To provide opportunities for the pre-service education of a limited number who want to prepare for careers as educational personnel particularly for those who want to prepare in those fields where employment opportunities are greatest and/or in fields of demonstrated curricular needs.
> 3. To develop and offer limited and experimental programs for the preparation of education personnel in non-school settings.
>
> In specifying those priorities that should guide the College for the near future, there has been no attempt to separate the teaching, research, and service aspects of these missions. To become a College of "first order relevance" requires that we address our goals with well integrated activities in these three traditional performance categories. Teaching must be enriched by research, especially at the advanced levels. Service activities should not be characteristically

different from teaching or research except that they are focused on special clienteles - special in the sense that they are not the typically enrolled students. The interactive and interdependent relationships among these activities are a distinguishing characteristic of a university-one so fundamental that it must be preserved. For a university ought to be more than an institution where professors who do research also teach (or vice versa) and, as the occasion of their interest warrants, "serve" the community. The university ought also to be more than a "public utility" which provides service on call. What more a university ought to be can be represented in large measure by the reciprocal interactions among these classic triadic functions.[2]

1.3. Situation

1.3.1. Higher education faces new challenges

Higher education today is faced with apparently conflicting demands. On the one hand more services are expected by an increasingly outspoken public. On the other hand financial resources are more restricted at the same time that insistent claims are being made for more effective economic accountability and stewardship. Questions are raised concerning the efficiency of the education enterprise amid references to the efficiency objective traditional in business and industry. The need for more and better facts to support the planning and resource allocation function, and the external reporting one, is obvious from trends now evident in American education. Enrollments are falling or leveling off, inflation drives costs upward against less flexible tuition and appropriations, and today's students of all ages and occupational status seem to be turning toward a more varied set of non-traditional educational experiences. Clearly, data bearing on program planning and policy evaluation is needed.

The insistence of some of these problems is reflected in the report of the Carnegie Commission on Higher Education entitled The More Effective Use of Resources: Imperative for Higher Education. It suggests: "One solution to the crisis (of inadequate funding) is the more effective use of resources. What do we mean by more effective use of resources? What do we mean by more effective use of resources within higher education? Among other things we mean that an institution should (1) carefully analyze the relations between the use of resources and the accomplishment of goals, (2) seek maximum economies with minimal

sacrifices in quality, and (3) encourage rapid and flexible adaptation to changes in needs for educational, research, and public service programs." The report continues: "Higher education must work on both sides of the equation -- more money and more effective use of it. It should both obtain the money it really needs and maximize its output from this money. Constructive possibilities -- not only negative ones -- reside in a period of financial stringency."

The remarks in the report of the Carnegie Commission suggest new or revised approaches to academic governance -- approaches which involve the systematic examination of problems, alternative solutions, implementation procedures, and evaluation techniques by all those involved. As Lahti[3] has noted: "The success of a learning or management system depends upon organizational definition. Effective planning, which is the basis for the system, cannot be achieved unless (1) the organization's purpose is understood and agreed upon; (2) the organization's objectives have been established and adequately communicated to participants at all levels; (3) at the unit or department levels, there is sufficient clarity about the basic missions of the unit and how the unit fits into the overall organizational picture." He continues: "To be successful, a management system demands open communication and feed-back. It demands constant review. It requires anticipation of potential problems and it requires management development."

1.3.2. Systems concepts and models

One response to the challenges implicit in the preceding remarks has been the application of systems concepts to educational planning and management. The systems approach can be regarded as a disciplined way of analyzing as precisely as possible sets of activities whose interrelationships are very complex, formulating comprehensive and flexible plans based on the analysis, implementing the plans, and evaluating the results.

Basic to the systems concept is the idea of a model -- a simplified but controllable version of a real-world situation which serves a function roughly comparable to that of a laboratory experiment. The problems confronting education today involve complex interconnections and linkages rather than straightforward associations and cause-effect sequences.

Important changes and events may be extremely difficult to predict. In such cases an appropriate model can help significantly by supplementing traditional intuition and judgment.

Systems models and programs available to universities and colleges are designed to serve several major purposes. Shoemaker[4] identified six, of which two are more directly related to the purpose of this study: (1) management information systems for planning and (2) simulation. Management information systems for planning organize and analyze data needed for long-range planning and for projecting goals, needs, and procedures, such as the cost of various enrollment levels, the cost of instructional procedures, and the resource allocation required to support such projections. Simulation emphasizes the interrelationship in the quantifiable factors which will result from various assumptions about the learning environment, such as enrollment growth or decline, changes in instructional procedures, changes in faculty composition and pay, overhead costs, and the like.

There is the possibility that inappropriate use of systems models and systems approaches to planning and management will tend to de-humanize the educational experience. Indeed, this fear has led many to resist the application of such approaches in an undertaking which, most would agree, should be a very humanized process. Sincere acceptance and application of the following tenets adapted from Hitt[5] should guard against such abuse: (1) The primary function of educational management is to facilitate the educational process. All systems of planning and management must be means to that end. (2) The educational manager or administrator must be an effective human being. (3) The human dimension of management and the systems dimension can be brought together through participative, or humanistic, management.

No information or planning system can be a substitute for the human dimension of decision-making. We assume, however, that an informed and deliberated decision will be more acceptable to our publics and beneficial than an uninformed, hasty, and arbitrary determination. To encourage and facilitate such informed and deliberated decisions, information and planning systems models have been devised.

1.3.3. The College of Education and the model

The College of Education faces many of the problems challenging American higher education in general. Enrollments are leveling off; resources are becoming more restricted; programs are changing to meet a different mix of instruction, research, and service needs; new modes of interaction with the college's consumers and publics are developing; the nature of the consumers served is changing; number of faculty and staff is stabilizing. An extended treatment of questions and issues along these lines is provided in the report of the Committee on Analysis of College Needs, Services and Resources.[6] Stabilized parameters call for consideration of trade-off variables rather than the simple incremental mode of allocation characteristic of growth situations.

Key information categories of concern to the College in planning and analysis of activities include (1) enrollment, (2) staff requirements--faculty and non-faculty, (3) support requirements --supplies, equipment, services, (4) physical facilities requirements, (5) revenue, and (6) cost analysis information.

These conditions call for rapid but informed policy-making, sophisticated management and evaluation techniques, and alternative-tested planning decisions. These latter needs suggest the possibility that a model with comprehensive management information system and simulation capabilities could be of value for analyses, planning, and resource allocation purposes. The model chosen for consideration in this study is called CAMPUS PMS (Comprehensive Analytical Methods for Planning in University/College Systems -- Planning and Management System), by SDL Systems Research Group, Toronto, Canada. The feasibility of its implementation in the College of Education will be examined in subsequent sections of this report.

2. 0. DESCRIPTION OF CAMPUS PMS[7]

2.1. Nature of CAMPUS PMS

CAMPUS PMS (Planning and Management System) is a comprehensive set of information system components or models which includes as its core the CAMPUS simulation model. The PMS framework also includes various intermediate analytical and statistical reports. These permit direct analyses by the user as well as feed the CAMPUS model. The components are in part statistical and general information generators and in part devices to improve budgeting and long range resource allocation planning relative to organizational mission. A glossary of terms appears following section 2.6.

2.2. Provisions or Output of CAMPUS PMS

2.2.1. Report contents

The CAMPUS IX planning model generates 22 different output reports. They describe resource needs in terms of staff (faculty and non-faculty), funds, and space. The needs are derived from input assumptions about current or implied operations. Various unit costs, ratios, and budgetary translations are also provided.

2.2.2. Report types

There are two basic report types: single-year and multi-year. The 17 single-year reports contain detailed information reflecting the nature of operations for only one year or simulation period. Although each report applies only to one year or period, any of them can be produced for any year in the simulation. These reports are designed to provide a comprehensive description of operations for a particular time period. They permit comparison of characteristics pertaining to majors and departments or programs. Single year reports usually are prepared for past years, current year, and several future years -- as many as desired though normally 3-6 (more by coding instructions).

The five multi-year reports display aggregate information for more than one year, or simulation period, on the same report. The reports are designed to summarize trends in important parameters or indices over the duration of the simulation projections. If more

detailed information about any particular element is needed, the appropriate single year report can be studied. Multi-year reports are normally displayed for six future years. More meaningful future simulations have been found to be 3-4 years. This is a matter of coding instructions.

2.2.3. Report Formats

Each report has a fixed format. The information on a particular report will be displayed in the same manner for every simulation. Only the variable parameters (e.g., number of departments/programs or majors), the numbers, and some definitions can change. Some terminology, report headings, and processing rules can be changed for different organizational structures. Fixed formats are assumed to have advantage for the user who wishes to evaluate results of more than one simulation: he need only compare figures from different experiments item by item as interest dictates.

2.2.4. Report sequence

Reports are identified by numbers. The processing sequence in the system and hence the flow of information follows this same order. For this reason, the inexperienced user can more readily understand the reports if they are initially studied in ascending numerical sequence. An experienced user, however, would normally study the reports of a particular simulation in reverse order. This is so because it is advisable to review the overall effects of the run and then study as necessary the details leading to those effects.

2.2.5. Report descriptions by number: single year

NOTE: Report contents, definitions, and input data can be modified, within certain limits, to fit local requirements. "Department" is interchangeable with "Program" as an organizational entity, depending on code definitions.

1 Student Enrollment by Major

The enrollment, average student contact hour load per week, and total contact hour loads are displayed by major and student level.

2 Department Course Loads by Major

The student contact hours by major and level are carried over from report number 1. The induced course load matrix (ICLM) input is then applied and the resulting load placed on each department and activity level printed. The fraction of the department load generated by each major and student level is also displayed. It is used later to assign costs from departments to majors in the "program costing" subsystems. Note: the ICLM is a separately generated input model in CAMPUS.

3 Department Instructional Characteristics

The instructional characteristics for each department, activity level, and instruction type are produced. Student, faculty, and teaching space loads are generated in appropriate units.

4 Department Teaching Staff Requirements

The faculty credit requirement generated for each department and activity level on report number 3 is converted into numbers of faculty, their salaries and office space requirements. There is also provision for generating faculty according to policy statements relating them to student credits and student contact hours.

5 Teaching Space Characteristics

The input characteristics related to teaching space are displayed for convenience and ease of modification. They include the average room area and effective utilization by space type and room size range.

6 Department Teaching Space Requirements

The teaching space contact hours generated for each department on report number 3 are converted to room requirements by space type and size range (stations). The total area required is also displayed.

7 Institution Teaching Space Requirements (Net)

The teaching space room requirement from report number 6 is summed over all departments for each space type and size range. This matrix is subtracted from the respective inventory values to produce net shortages or surpluses of space.

8 Department non-Teaching Resource Requirements

The resources, other than teaching faculty and teaching space, which are required by each department are generated according to functional relationships specified. If dollars are involved, each item is assigned to an appropriate financial program classification (FPC). The resources include non-teaching faculty, support staff, support space, other resources (non-salary costs) and revenue items. Non-teaching faculty costs could include research and service.

8a Department Budget Conversion System

Converts financial output from report numbers 8 and 4 to budgetary format according to local definitions.

9 College Resource Requirements

The resources required by the college as cost center are indicated according to functional relationships specified. The types of resources are the same as on report number 8 except no faculty can be assigned to the college cost center (faculty are assigned to departments). Each cost item is assigned to the appropriate FPC.

9a College Budget Conversion System

Converts financial output from report number 9 to local budgetary format as in report number 8a.

10 Administrative Resource Requirements

The resources required by each administrative unit cost center are indicated according to functional relationships specified. The types of resources are the same as on report number 9. Each cost item is assigned to the appropriate FPC.

10a Administrative Budget Conversion System

Converts financial output from report number 10 to local budgetary format as in report number 8a and 9a.

11 Administrative Unit Operating Requirements

The staff and budgetary requirement for each administrative unit cost center are displayed. Totals are calculated for all administrative units.

12 Comparative Department Operating Characteristics

College and Department budgetary requirements and unit costs are printed along with overhead cost allocations. Totals and/or averages are provided.

13 Department Unit Costs by Course Level

Departmental total costs and unit costs are supplied by activity level. The percentage of the total costs that is represented by teaching salaries is provided; the unit costs are calculated using teaching salaries and total costs.

14 Unit Costs and Loads by Major

The departmental costs are assigned to majors and student levels using the matrix calculated on report number 2. The total costs and unit costs are displayed along with an indicator to compare loads placed by each major and student level with the costs assigned to that major and student level.

2.2.6. Report descriptions by number: multi-year

NOTE: Report contents, definitions, and input data can be modified, within certain limits, to fit local requirements. "Department" is interchangeable with "Program" as an organizational entity, depending on code definitions.

1 Multi-Year Enrollments and Costs by Major

The enrollment, costs assigned, cost per student and cost per student contact hour are displayed by major. The same information is totaled for all majors.

2 Multi-Year Department and College Operating Summary

Total costs, revenue, and staff requirements are listed for college cost center and its affiliated departments.

3 Multi-Year Administrative Unit Operating Summary

The costs, revenue, and staff requirements are listed for each administrative unit cost center. The total for all units is also printed.

4 Multi-Year Space Requirement Summary

The space requirements, in square feet, are displayed by space type. Each type is also represented as a percentage of the total.

5 Multi-Year Institution Planning Summary

This report represents the summary of the information printed on all other reports. It applies to the institution or college as a whole. The operating costs and revenue are displayed by FPC and the result balanced to produce a net surplus or deficit for each year simulated. Salary budgets are broken into teaching faculty, non-teaching, and support. Each is represented as a percentage of the operating budget. Staff requirements are totaled and the overall load placed by students is provided. Several significant indices are calculated for each year simulated.

2.3. Component structure of CAMPUS PMS

CAMPUS PMS is a concept of information system planning and implementation employing several components and models, among which CAMPUS is central. Each component system has its own computer program. These produce in the course of operation various supplementary analytical

reports tailored to the user's requirements and interests. In addition, several report generators and models which are intermediate between basic institutional operating files and the CAMPUS simulation model itself are developed. Some of these components can stand alone as well as provide the necessary input to CAMPUS. Figure 2. 1. is a schematic view of CAMPUS PMS components. They are described in the following sections.

2.3.1. Pre-Processors (PPR)

The Pre-Processor programs are designed to assist in preparation of the files that are required to operate CAMPUS PMS. Included are a set of editing reports for checking the accuracy of inputs that come from various parts of the institution's information system. They also prepare the inputs from this sytem in the format required for application of the PMS software, with suitable numeric sequences, conversion of institution codes to PMS codes, and the like. The pre-processors are tailored to each institution's data characteristics but all lead to the same kinds of inputs to the other components of PMS. See Figure 2. 2.

2.3.2. Operations Analysis System (OAS)

The Operations Analysis System is a report generator that produces a range of computer outputs on program enrollments by student level, departmental student loads by course and student level, average class size measures, faculty assignment analyses and average salaries, and facilities inventory and utilization summaries. These reports can be useful in themselves to suggest new questions and for various institutional analyses. Using the basic operating files, the OAS generates 12 reports on the operations of the college as well as producing the bulk of the CAMPUS simulation model's inputs in machine-readable form. See Figure 2. 3.

2.3.3. Cost Analysis System (CAS)

The Cost Analysis System provides detailed figures on the costs of currently offered courses and programs of instruction. Overheads can be allocated under optional rules. Outputs are costs per unit of output (or output proxy) such as student, student credit hour, or student contact hour. The CAS also produces costs by major and student level. See Figures 2. 4. and 2. 5.

Figure 2. 1.

CAMPUS PMS Components

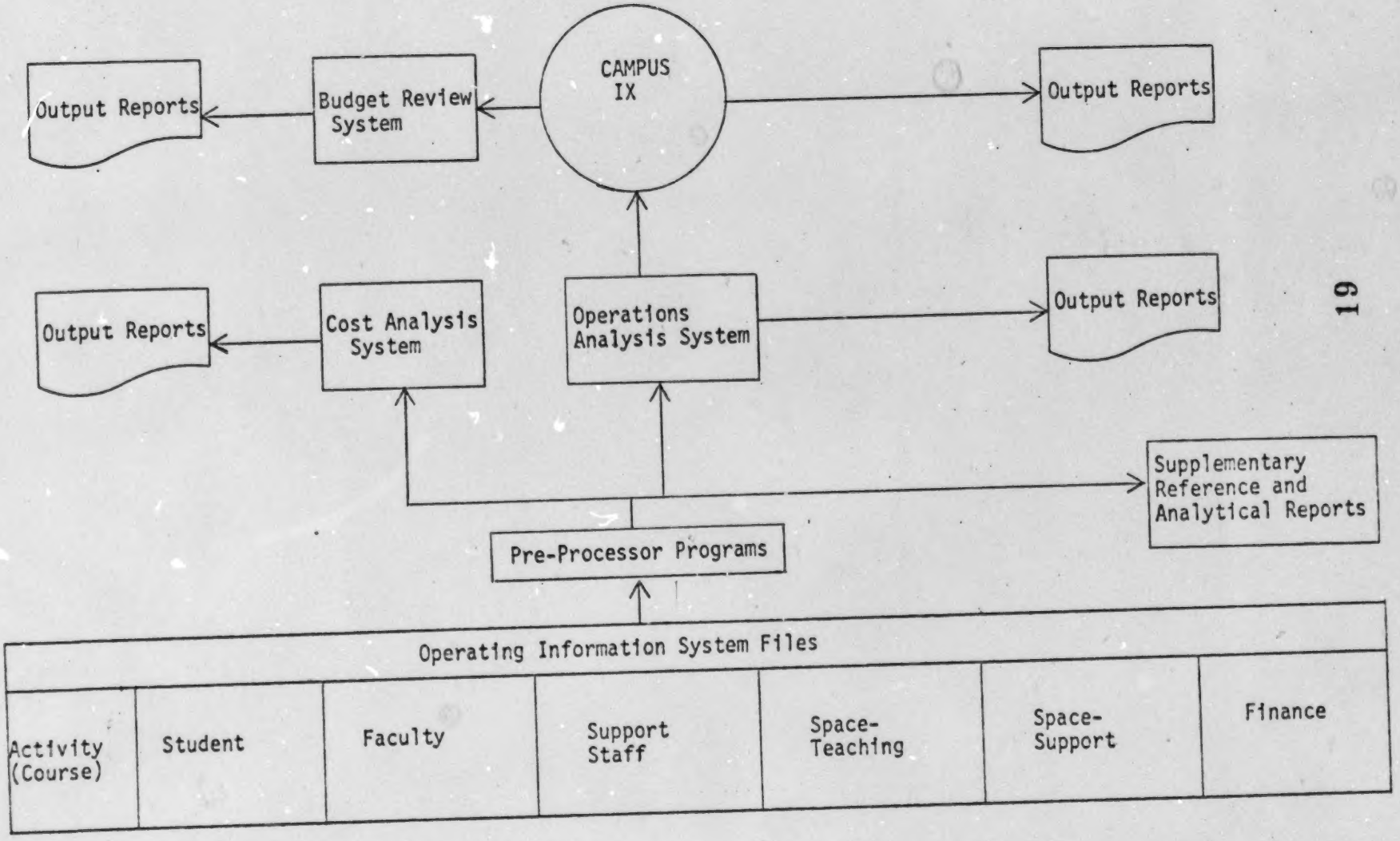
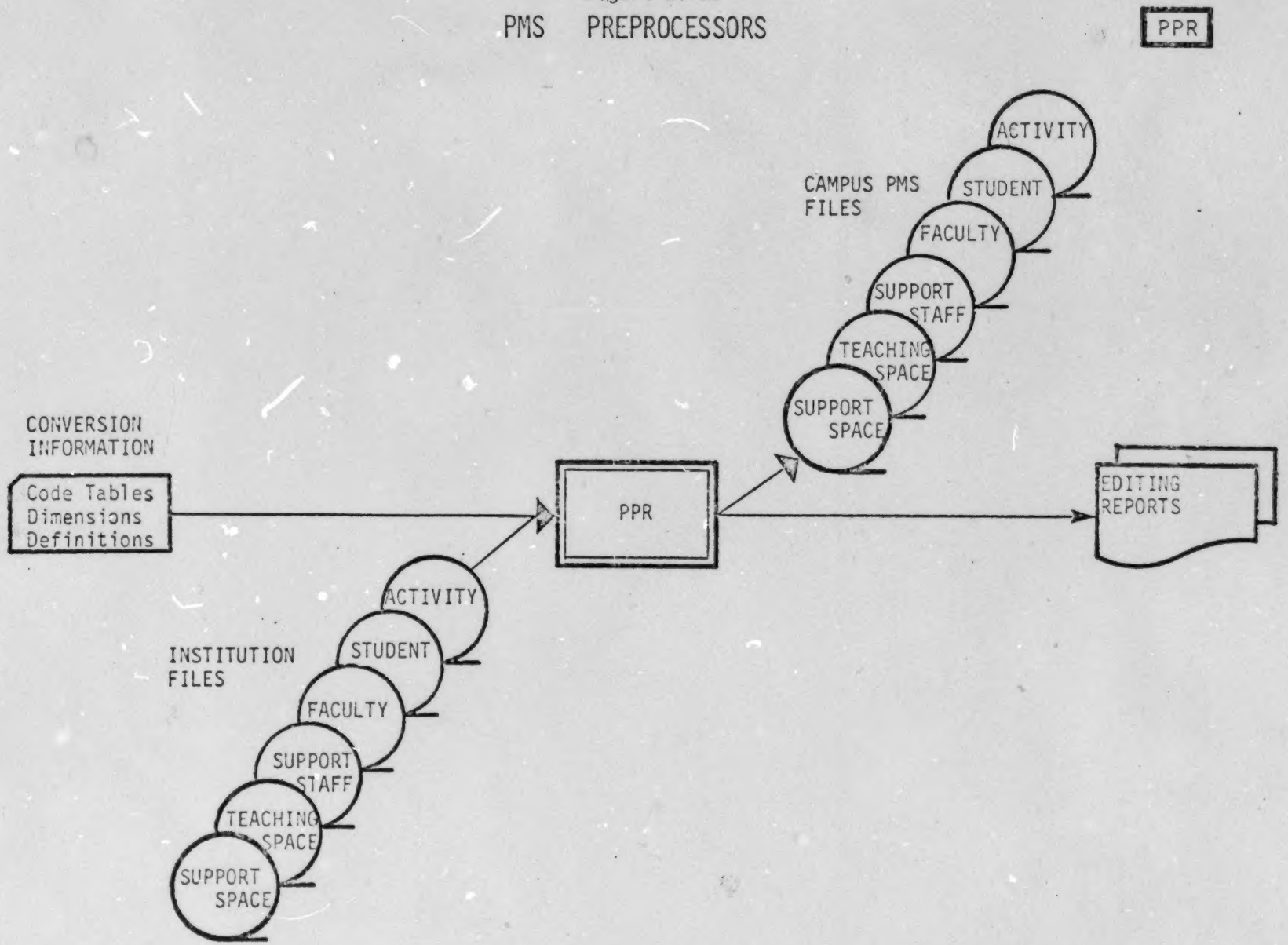


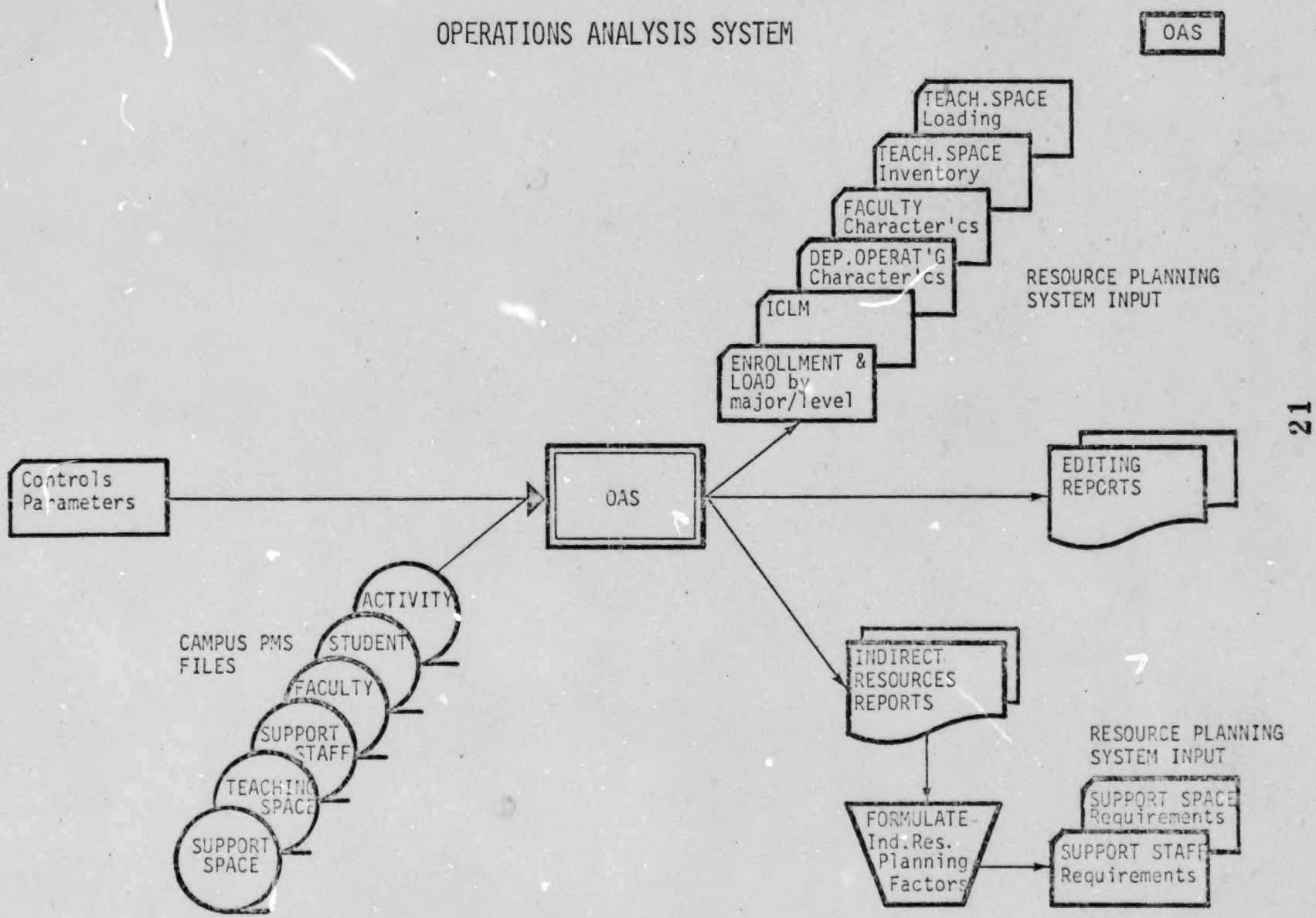
Figure 2. 2.

PMS PREPROCESSORS



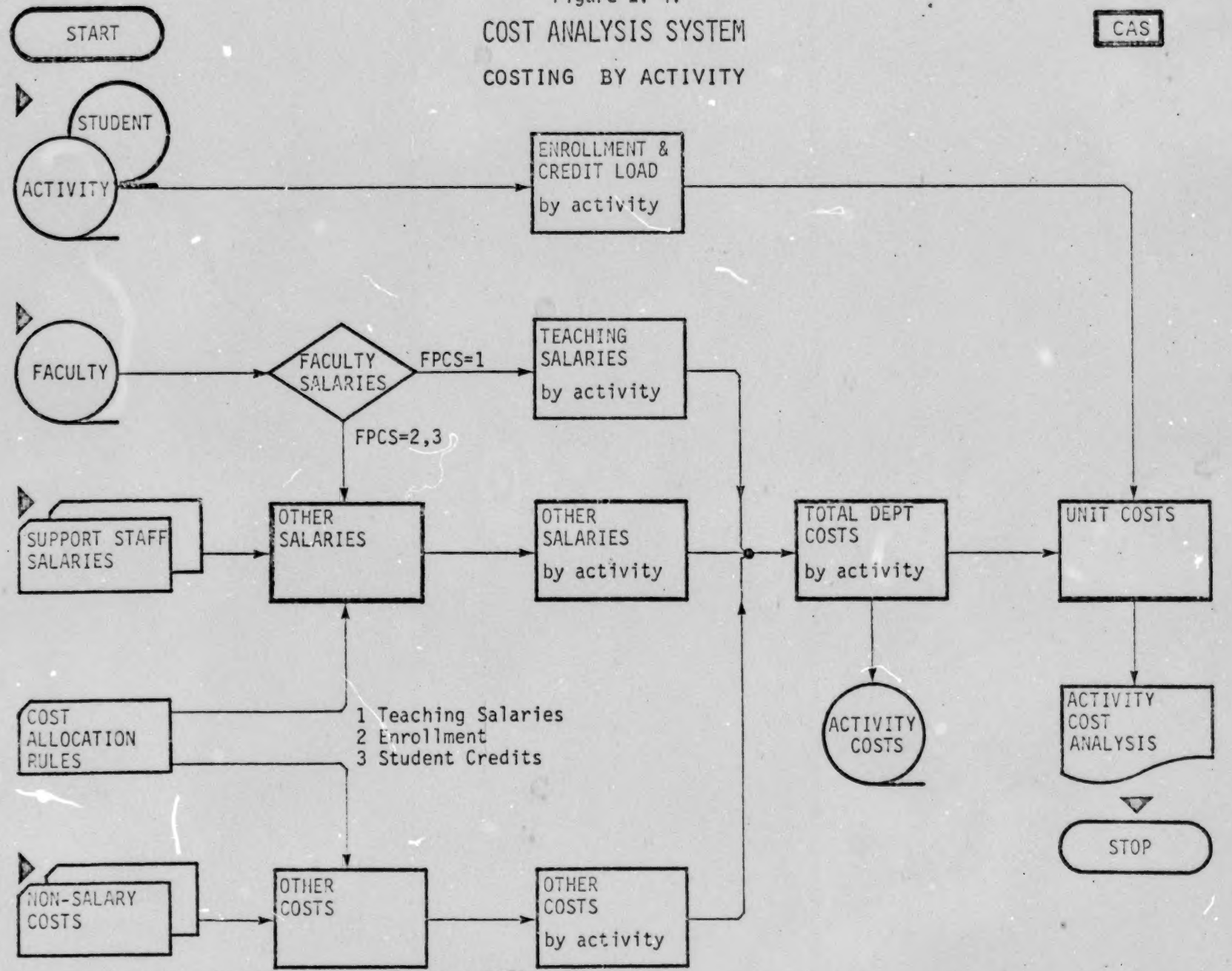
Source: SDL Systems Research Group, Toronto, 1974.

Figure 2. 3.



Source: SDL Systems Research Group, Toronto, 1974

Figure 2. 4.

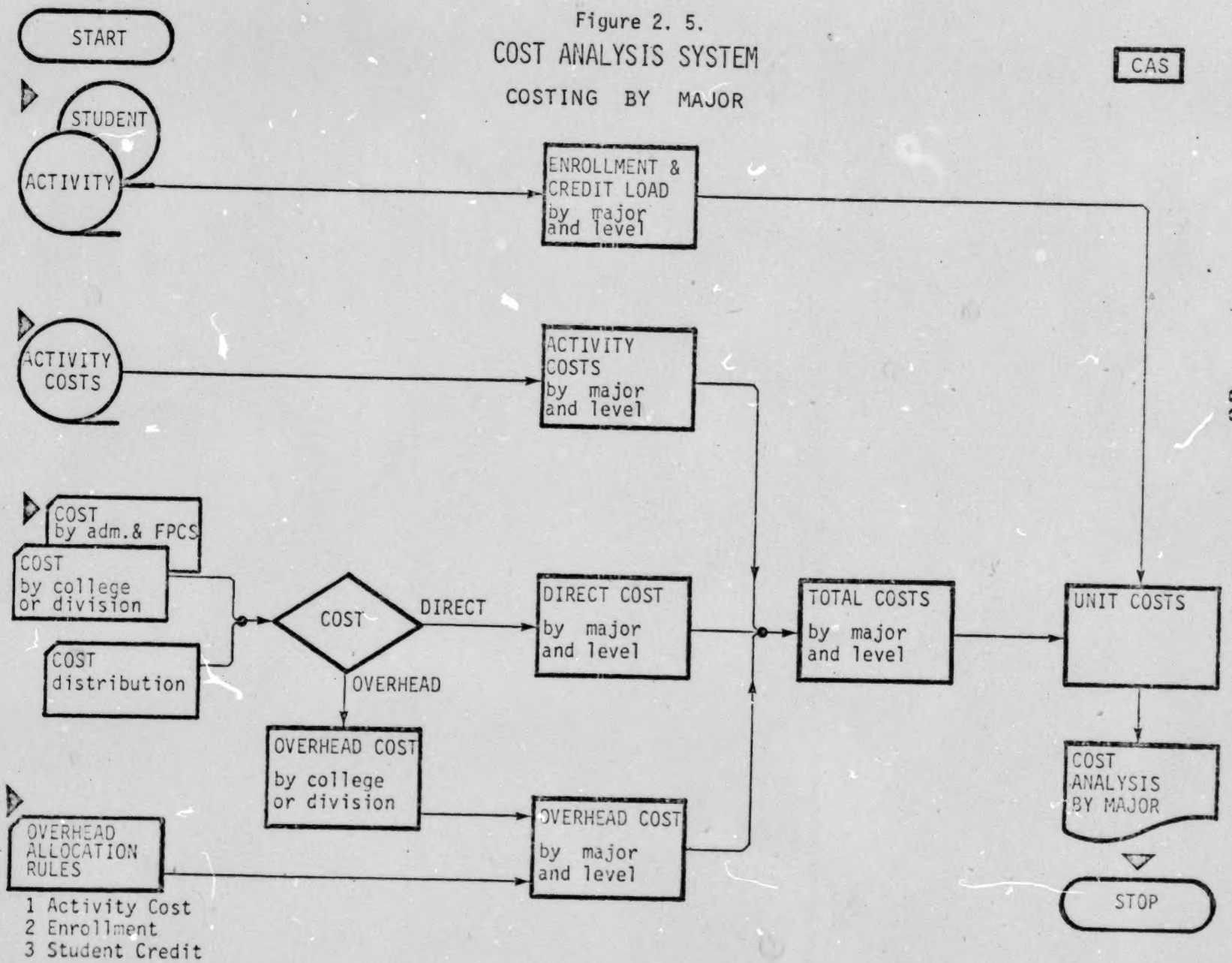


Source: SDL Systems Research Group, Toronto, 1974

Figure 2. 5.

COST ANALYSIS SYSTEM

COSTING BY MAJOR



Source: SDL Systems Research Group, Toronto, 1974

2.3.4. Supplementary reference and analytical reports

Various reports desired by the user can be produced from the institutional operating information system files as supplementary output. These are typically of the institutional research type. One example from CAMPUS PMS is the Student Anlaysis System (SAS). It provides for additional reports from basic student files. Its emphasis is on reporting characteristics of students. One objective could be to improve analyses of student progress from admission through graduation to employment (follow-up studies, etc.).

2.3.5. Resource Planning System (CAMPUS IX)

The CAMPUS simulation model, in general, displays the resource requirements in terms of staff, space, and funds for each of a number of future planning periods growing out of conditions in the base year. It is the core of the CAMPUS PMS system. Unlike the other components, it is designed to answer questions that are either historical or prospective in nature. The complex computer programs accept statements on future expected enrollments, teaching policies, staffing rules, and change factors in costs and revenues. These latter are known as "policy/planning factors". Such statements are blended with the other components in the system. For a given set of assumptions about the future, the model generates a set of reports on future cost and revenue conditions.

In this connection, the model can be an instrument of innovative reasoning-- telling the user the economic implications of his assumptions about his future. How will costs vary with enrollment? How will faculty count vary with changes in future teaching rules or instructional situations? How will class size policy affect teaching space needs? What are the support cost implications? What are the future capital budget implications? With respect to revenue, the model displays results of the user's interpretation of present revenue allocation trends. How will revenues vary with stated changes in fees, grants, and internal institutional allocations as affected by enrollment and institutional or state university system policy? --and so forth.

In summary the model, which replicates the key activities and resource use rules of the institution or college, is most useful in (a) revealing the nature of present policies and activities (Which must be stated as the base for planning exercises with the model), (b) communicating various items of previously unavailable information to internal and external audiences, and (c) describing probable resource implications of alternative future conditions of enrollment, programs, fees, inflation, etc., under various academic rules/policies on salaries, teaching loads, non-teaching loads, instructional methods, and space allocation criteria. The latter of these three functions is integrated with the budgeting routines which are a part of CAMPUS PMS, and is of special significance in the planning of future staff, facilities, and finance. See Figures 2. 6. and 2. 7.

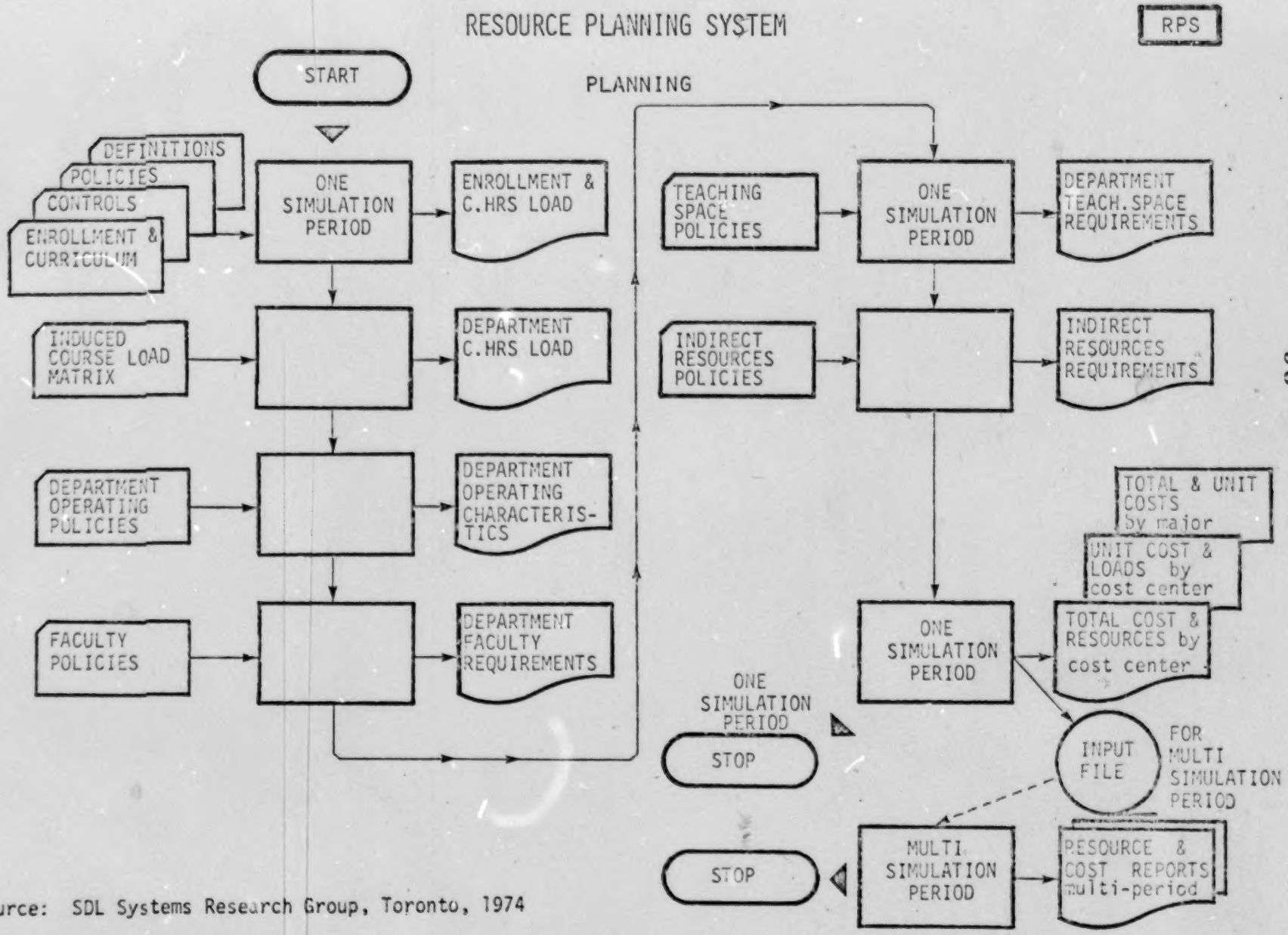
2.3.6. Budget Review Systems (BRS)

The Budget Review System is an extension of the CAMPUS IX simulation model, plus additional software systems to link current and past years' budgets to the one currently being considered. The system components are first an elaboration of CAMPUS IX itself. Second, they are an addition to the PMS outside of CAMPUS IX, so that the outputs can be arrayed in traditional format of the "line item" type. The latter is concerned more with the objects of expenditure than with purposes underlying the expenditure and is more convenient for transactional and audit purposes.

The Budget Review System has as its foundation output reports 8a, 9a, and 10a. This is the first stage of the conversion of the output of the resource planning system to traditional budget format. The reports summarize for each financial program (e.g. instruction, research, academic administration from report 8a), the main budget items as computed in the simulation.

The Budget Review System through special routines provides for detailed accounting codes and items from the current year budget as well as the previous years' actual expenditures. Beside these items the system displays the outputs for the next year's simulation, or "planned costs." It also provides a usable form on which can be made "requests" different from those shown as planned costs. The decision-making group or person can, finally, enter the approved budget for each department or administrative unit in the last column of the

Figure 2. 6.



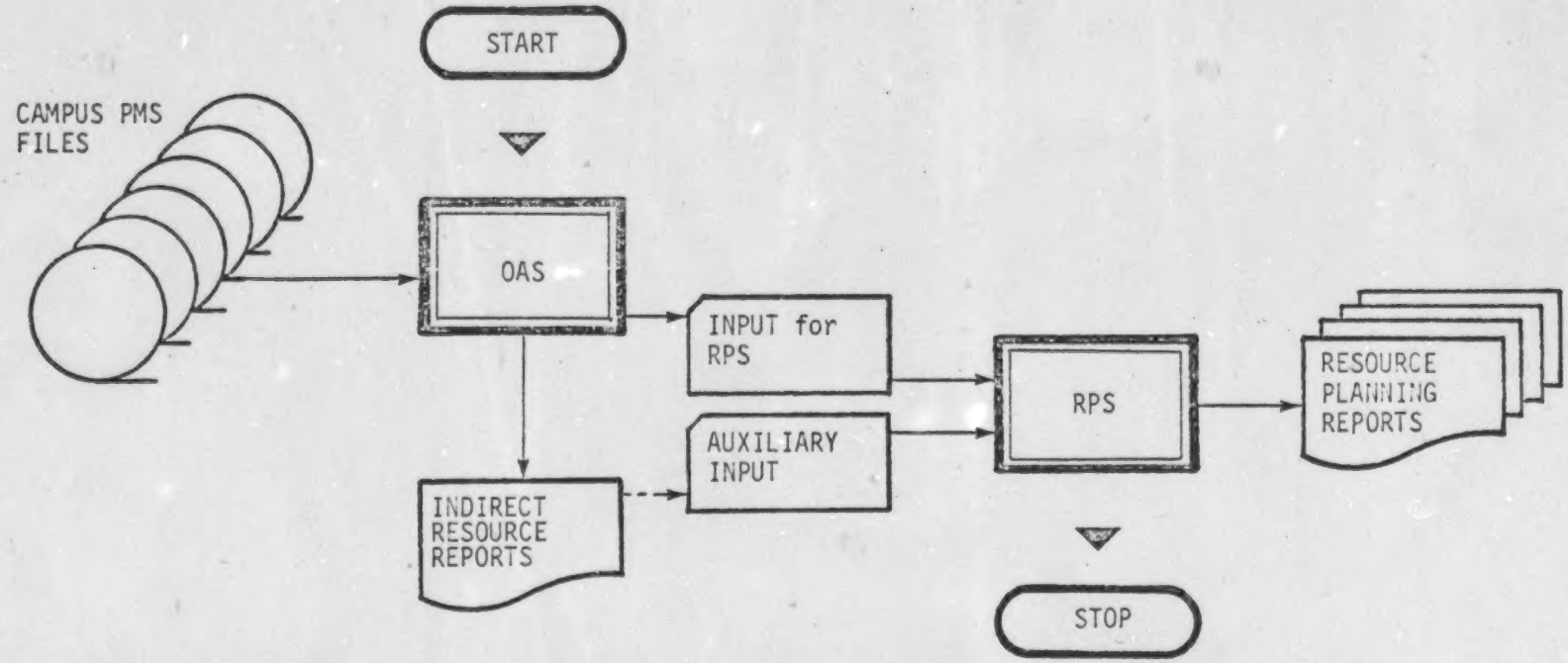
Source: SDL Systems Research Group, Toronto, 1974

Figure 2. 7.

RESOURCE PLANNING SYSTEM

RPS

ANALYSIS



Source: SDL Systems Research Group, Toronto, 1974

Budget Review Report. A sample format follows:

Last Year	Current Year	Next Year	New Year	Next Year
Actual	Budget	Planned Costs	Requested	Approved

See Figure 2. 8. for a schema of the Budget Review System.

2.4. Basic file input required to drive CAMPUS PMS

The CAMPUS PMS system requires one or more of three basic types of information as input. These are: (a) basic operating data files, (b) output from other PMS components, and (c) auxiliary input information of policy/planning and definitional nature. See Figure 2. 9. for a schema of these types. Most of the input comes from the data contained in the basic operating files described below. Conversions and coding to meet CAMPUS PMS requirements are performed where necessary. In addition, auxiliary files can be created from the basic files at user option.

2.4.1. Activity (course) File

This is essentially a course file. An activity is the smallest component of a course and section that requires a unique set of resources (e.g. space) and is taught in a particular fashion (e.g. a specific faculty member, with a designated class size, or has credits specifically assigned to it). For example, a measurement course might consist of three activities--lecture, lab sessions, and field work.

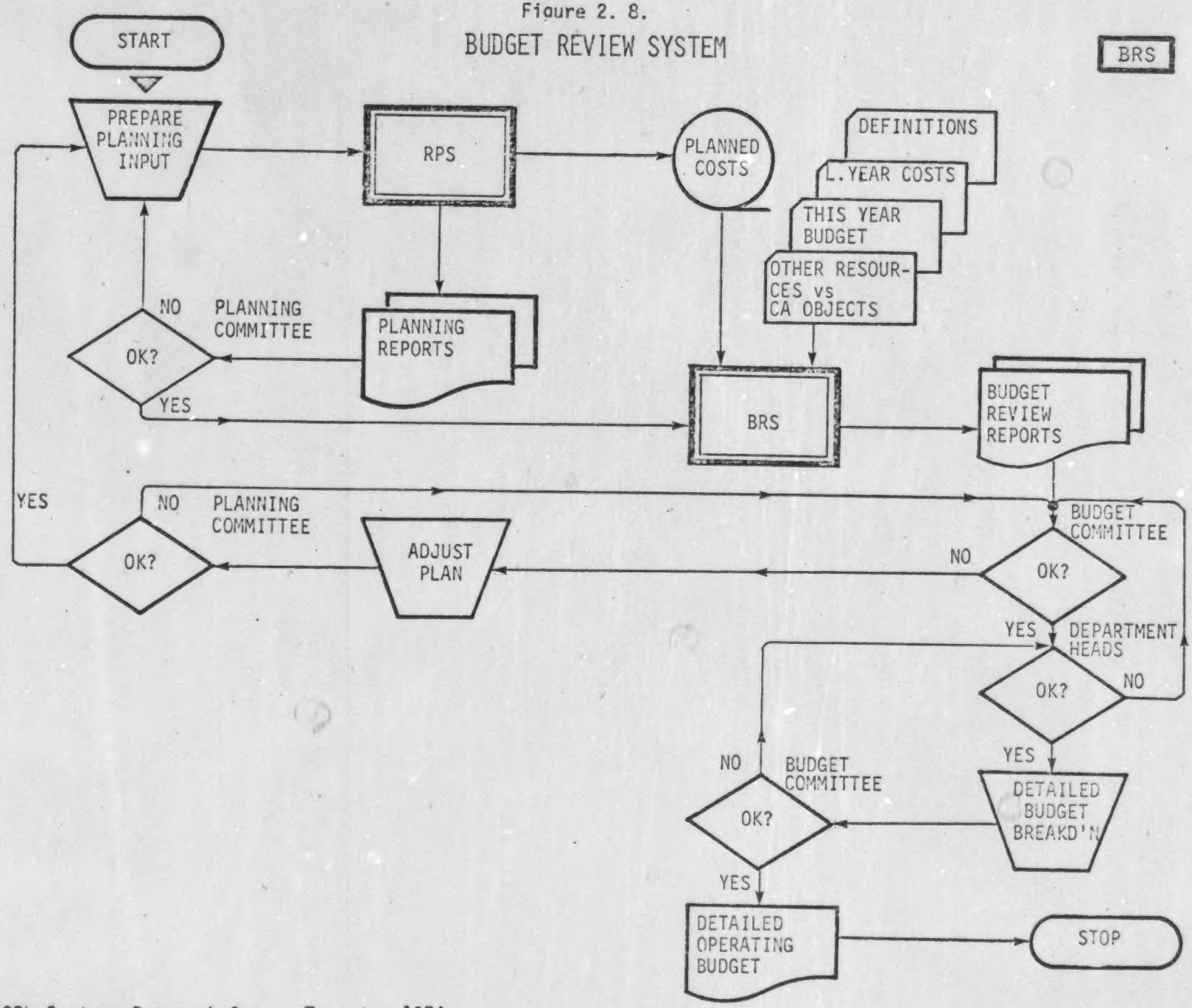
The activity file includes, for each activity, the following:

Department
Course
Instruction type (e.g. lecture, laboratory, etc.)
Session (i.e. term taught)
Activity type or level (lower division, upper division, graduate)
Contact hours per week
Teaching space type (type of room needed)

2.4.2. Student File

The student file, like the activity file, contains individual-specific data on each student, and includes the following data elements:

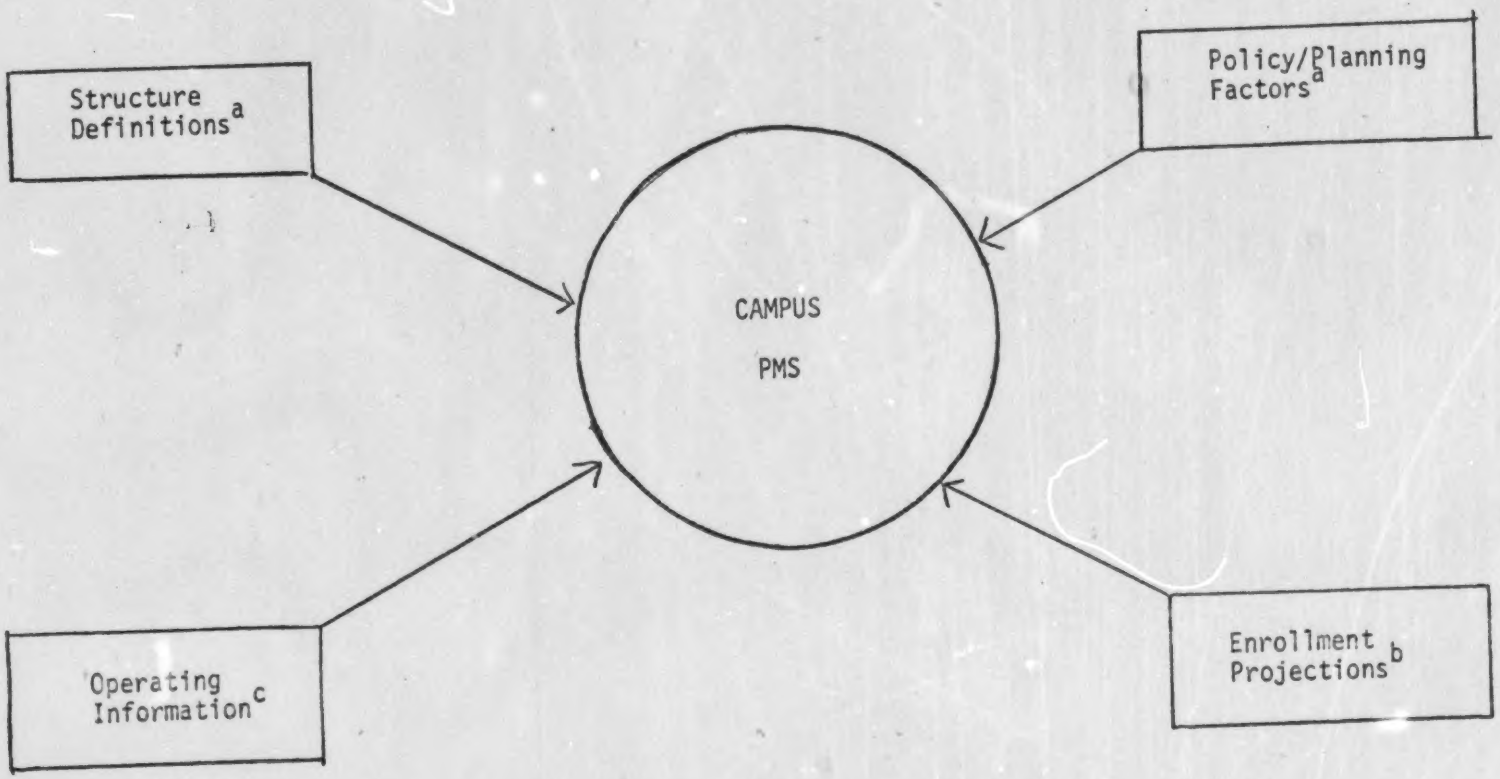
Figure 2. 8.



Source: SDL Systems Research Group, Toronto, 1974

Figure 2. 9.

Basic types of input required to drive CAMPUS PMS



[a]Manually generated input.

[b]Generated by other PMS components, or manually input, at user option.

[c]From institution operating information system files and intermediate report generators and models generated automatically by PMS.

Student I.D.

Major

Student level (i.e. freshman, sophomore, etc.)

Curriculum (repeated for each activity taken: department, course, section, instruction type, session, credits earned)

2.4.3. Faculty File

Like the student file, the faculty file contains information on each member of the faculty:

Faculty I.D.

Faculty type (i.e. professor, associate professor, etc.)

Salary

Salary assigned to duties (% assigned to faculty duties)

Office Space

Teaching load (as in activity file--department, course, instruction type, session, section, and credits received for teaching the activity section)

Financial Program Classification of salary, as allocated (i.e. faculty salary assignment by financial program, either WICHE/NCHEMS or some other desired categorization)

2.4.4. Support Staff File

A support staff member may either be supporting academic activities (although no teaching) or be engaged in administrative work. Part time support staff may either be indicated on the file or their salaries may be entered as a separate budget entry elsewhere. The support staff file contains the following data on each support staff member:

Support staff I.D.

Type (e.g. senior admin., secretarial, etc.)

Cost center type (type of cost center where the person works--academic, academic/admin., non-academic/admin.)

Cost center (department or unit where person works)

Salary

Salary assigned to duties (% assigned to support staff work, which would be 100 unless partial percentage has been entered in the faculty file)

Office space

Financial Program Classification of salary, as allocated to one or more classifications

2.4.5. Teaching Space File

Teaching space is defined as an area that is used for scheduled activities. Each room is assigned a number, classified by type (classroom and lab/shop). The teaching space file contains the following data:

Facility (building)
Room number
Instruction type (class, lab/shop or none needed)
Teaching space type (subcategory of instruction type)
Number of stations
Area in net assignable square feet

2.4.6. Support Space File

The support space file is analogous to the teaching space file. It includes data on all non-teaching spaces. In this file a room is defined as a unique area, including such things as corridors, and each room is assigned a number. The support space file contains the following data:

Facility (building)
Room number
Support Space type (e.g. executive office, faculty office, storage, circulation, recreation, etc.)
Area in net assignable square feet

2.4.7. Finance File (s)

The Finance Files contain extensive budget and expenditure data. These files are the source of the "other" (non-salary) costs referred to in CAMPUS PMS. Some examples of items follow:

Department or Grant account number
Expenditure object codes
WICHE Program code
Payroll data
Salaries
Other Personnel Services (OPS) funds
Expense
Operating Capital Outlay (OCO)

2.5. Relation of basic institution file input to CAMPUS PMS component systems

The various systems of CAMPUS PMS require different combinations of institution input files. These files in some cases are modified for CAMPUS processing. A list of such files corresponding to each system is provided below. It should be noted that additional information is required by all systems that is not specified on the institution files. This information (e.g. definitions, policy/planning statements, code conversion tables, etc.) must be supplied as auxiliary input to each system. Refer to Figure 2. 9.

System	Institution Files
PPR (PMS Pre-Processors)	Activity Student Faculty Support Staff Teaching Space Support Space
OAS (Operations Analysis System)	Activity Student Faculty Support Staff Teaching Space Support Space
CIX (CAMPUS IX -Resource Planning System)	Activity Student Faculty Support Staff Teaching Space Support Space
BRS (Budget Review System)	Activity Student Faculty Support Staff Teaching Space Support Space

2.6. General model provisions and constraints

2.6.1. Provisions

1 Cost categories accommodate activity (teaching, research, etc.) costs and overhead.

2 Output can be identified with specific organizational units.

3 Incremental costs are considered.

4 Output is conducive to some qualitative judgment.

5 The model is predictive.

6 The model structures an organized data base.

7 After sets of data are collected, generation of alternatives is easy and inexpensive.

8 The model has been implemented in several institutions.

2.6.2. Constraints

1 Capital costs of space are not provided.

2 Outputs are not directly related to instructional objectives nor to a value added concept.

3 The model assumes linear relationships. Curvilinear relationships are not accommodated.

4 Costs for an individual course are not projected in the simulation mode (they are included in the cost analysis component).

2.7. Glossary of terms

NOTE: Most of these definitions can be modified to meet institutional requirements through local coding specifications.

Activity	An activity is the smallest sub-unit of a course that requires unique physical resources or has any other characteristics that differ from other parts of the same course (e.g., section size, scheduled hours per week, credits or faculty requirements). For example, a curriculum course might consist of three activities: a discussion session, a laboratory session, and supervised fieldwork.
Activity Level	Each activity must be identified with a level. Up to three levels can be defined. This provides the ability to describe and report on activities that have different general features. Usually levels are chosen to reflect the level of advancement of subject material.
Administrative Unit	An organizational unit reflecting a support department or group of such departments. It cannot "own" activities or faculty. It is an administrative cost center.
CAMPUS - PMS	Comprehensive Analytical Methods for Planning in University/College Systems - Planning Management System. CAMPUS is a simulation model component of PMS.
Classroom Types	More than one type of classroom can be defined. This should be done only if the furniture prevents the interchanging of classrooms of various types.
College	An academic administration cost center. It would usually represent a dean's office. No activities or faculty can be "assigned" to a college.
Contact Hour	A period of contact between students and some resource of the institution, such as faculty or teaching space. Its length may be defined as an hour, a period, or any other convenient time interval.

Cost Center	A cost center is defined as an organizational entity which meets at least one of the following criteria: . performs a teaching or instructional function and/or supplies resources to meet requirements generated by students. . supplies support resources to meet requirements generated at any other point in the system. . provides a convenient point of aggregation for resources generated at other points. The CAMPUS IX simulation model has three types of cost centers: departments, colleges and administrative units. These can be re-defined, however, to meet local requirements.
Faculty Credit	A number representing a measure of contribution a faculty member offers in connection with fulfilling his contractual obligations to the institution.
Department	An academic department or teaching cost center. It usually "owns" faculty and is responsible for offering activities.
Effective Utilization	The actual number of hours per week that a particular type and size range of teaching space is in use each week.
Faculty Types	Faculty can be divided into various types in order that requirements for faculty can be determined in more detail. Faculty types might be used to distinguish various salary levels or contract types. Traditionally, this refers to rank, tenure/non-tenure, etc.
FPCS	The Financial Program Classification Structure represents a basic breakdown of the institution's operating budget and revenue sources. Up to 8 FPC's can be defined for expenditures (e.g., teaching, research, service, etc.). The FPC definitions are prepared by the user to meet local conditions, or the WICHE program classification structure can be used.

Major	An academic program consisting of a curriculum and having students enrolled. It may also represent a combination of two or more regular degree programs, or it may be a segment of one regular degree program.
Other Resource Type	The term "Other Resources" refers to all non-salary cost items. An example of other resources would be Expense. Other resource items are used to input the non-salary funds to the simulation model.
Student Credit	A number representing a measure of achievement for a student taking an activity.
Student Level	Students enrolled in majors are assigned levels to reflect particular course selections and/or levels of advancement. Typically student levels chosen are freshman, sophomore, junior, senior, graduate.
Revenue Types	Each type of revenue can be uniquely identified for input to the simulation model.
Support Space Type	All space not used for scheduled instruction is referred to as support space. This space is classified into various types to facilitate input to the planning model using functional relationships similar to other resources and revenue. Space requirements are also displayed by space type on the output reports.
Support Staff Types	All support staff are classified by type in order that they can be input to the simulation model using functional relationships. Support staff requirements are displayed by type on output reports.
Teaching Costs	These are the salaries assigned to FPC number 1 for faculty requirements displayed on report number 4. Teaching salaries are the portion of faculty salaries that are identified directly with instruction.
WICHE/NCHEMS	Western Interstate Commission on Higher Education/National Center for Higher Education Management Systems.

3.0. COMPARISON OF CAMPUS PMS REQUIREMENTS WITH CURRENT COLLEGE OPERATIONS.

The current operational status of the College of Education will be compared with CAMPUS PMS requirements in terms of the following categories: (1) curriculum, (2) enrollment, (3) faculty staff, (4) non-faculty staff, (5) space and facilities, (6) finance, and (7) organizational structure. Results of a discrepancy analysis of the categories will be summarized.

3.1. Curriculum

3.1.1. College of Education

The College offers 26 degree-major/certification/specialization programs at the baccalaureate level, 33 at the masters level, 5 at the specialists level, and 5 at the doctorate level. A total of 400 courses, comprising 19 course clusters (alpha course prefixes), are available. Courses include lecture/discussion, lab, and other (directed study, field work, etc.) activity types as defined in CAMPUS PMS.

Degree majors, certifications, and specializations are identified with 10 academic or teaching programs, each of which is headed by a director.

Courses are not necessarily "owned" by an organization unit. That is, there is not a one-to-one correspondence between each course and an academic program. Departments do not own courses.

3.1.2. CAMPUS PMS

The CAMPUS PMS model assumes that all courses and degree (or certification) programs are affiliated with (owned or offered by) a "department." There is wide latitude as to what the user wishes to identify as a department. Pseudo departments can be set up if needed. This is a matter of coding. The requirement for affiliation must be met however. This is for purposes of costing and generating faculty requirements, among other things. The model simulates up to 99 departments, 999 majors (could include, by coding, certification/specialization programs), 9 student levels, 3 course activity levels

(lower, upper, graduate), and 3 instruction types (e.g., classroom lecture, lab, other -- directed study, etc.). These limits can be exceeded for input and analytical report purposes, but conversion tables compress them for simulation output to the prescribed limits.

3.2. Enrollment

3.2.1. College of Education

Enrollment projections for courses and programs are ordinarily made by individual faculty and program directors. Methods being used are based generally on one or more of the following: (1) new admissions to the program; (2) extrapolation of historical course enrollment trends as modified by judgment; (3) current enrollees in the program; (4) county school staff development coordinators (for off-campus courses); (5) inquiries expressing interest by prospective new students; (6) analysis of societal needs and job market; (7) impact of other higher education institutions. Of these methods, the first two are the most common.

3.2.2. CAMPUS PMS

Enrollment projections by major, department (or program), and student level are made using (1) the current (or some other -- as specified by user) year's actual data or (2) manually input figures or formulas provided by user. Routine (1) is automatic unless (2) is specified. The automatic routine involves the production of the induced course load matrix (ICLM). The ICLM shows, by student major and level, the average hours in each course of a department and is computed by term.

3.3. Faculty staff

3.3.1. College of Education

Assignment of faculty for organization purposes is to one of four departments. The department is the "home" of the individual faculty member. The basis of assignment is the faculty member's personal preference.

Allocation of FTE positions in terms of workload is by activity within college functional category or program. Activities consist of teaching, research, public service, advising, and administration. College programs are governance, development, support services, college relations, coordination, and academic.

The dean estimates FTE effort to be devoted to each program. The resulting figures become parameters or benchmarks against which aggregate activity FTE requests are measured. Activity FTE requests are made by organization units within each college program area to support the responsibilities of the unit. Department chairmen coordinate activity FTE requests and match such requests to faculty members in the respective departments. This involves negotiation between chairman, faculty member, and heads of the various organization units (e.g., academic program directors needing faculty to teach courses).

The chairmen then confer with the dean to determine if aggregate FTE requests by activity fall within limits acceptable to the dean. If not acceptable, the requests are re-negotiated. A concomitant constraint is the state teaching contact hour law. The end result is that each faculty member's workload is assigned on a percentage basis to the activities mentioned above. With respect to teaching, the standard FTE load is 12 credit hours. Other activity assignments are usually expressed as "release" based on the same units. The bulk of assignments are for teaching. Program directors make requests based on number of course sections derived from projected enrollment. College faculty requirements are thus determined (1) in terms of five professional activities within six major college programs and (2) on the basis of projected need by the organizational units in the college programs.

3.3.2. CAMPUS PMS

CAMPUS PMS generates faculty academic requirements in two major categories: teaching and non-teaching (referred to as "other resources"). Non-teaching is usually sub-categorized into two classifications, e.g., research and service. Thus teaching, research, and service can comprise the three standard faculty academic resource types in the system. Other faculty activities, such as advising and administration, can generate FTE requirements based on user input specifications. Eight categories of faculty activity are available for FTE and cost purposes.

Faculty resource requirements in terms of FTE for teaching are generated by course activity level within each department. Requirements are calculated in two ways. The first method is based on number of average "credit" units allowed for teaching an activity section.

This is user-defined and corresponds roughly to the traditional course credit load. The second method is to input a policy statement relating need for faculty either to number of student contact hours or student credit hours.

Faculty resource requirements in terms of FTE for non-teaching duties can be generated in accordance with policy statements or formulas input by the user. Faculty for all types of requirements are generated by rank (up to 9) as defined by the user.

3.4. Non-faculty staff

3.4.1. College of Education

Assignment of non-faculty (or support) staff for support of the college programs is by the assistant dean. Basis of assignment is historical faculty/non-faculty ratios combined with negotiation with respective organizational unit heads. Special assignments are made for unusual or new circumstances. College reorganization has weakened the value of historical ratios in some situations. This has necessitated trial arrangements in some cases. The allocations are undergoing evaluation by the assistant dean.

3.4.2. CAMPUS PMS

Support staff requirements are generated based on functional relationships specified by the user. Up to 14 of these relationships can be stored for each department, and the relationships can be specified differently among departments. Relationships can be specified separately for administration units. Support staff for departments are usually based on number of faculty or specified as a fixed, or absolute, number. However, other bases are allowed. Up to 99 types of support staff may be specified.

3.5. Space and facilities

3.5.1. College of Education

Space and special building facilities required for teaching classes is centrally assigned. Size and type of room and type of equipment are matched to the class sizes and types indicated by program directors on proposed class schedules. Non-teaching space (offices, storerooms, workrooms, etc.) is assigned on the basis of number and type of personnel and nature of work performed.

Teaching space is centrally allocated by the university Space Office for the master class schedule based on needs as coordinated by the college assistant dean. Subsequent adjustments are made by the assistant dean and cleared through the Space Office. Block assignment of non-teaching space is made as necessary, usually annually, by the Space Office. Subsequent assignment within the college is made by the assistant dean and cleared through the university Space Office.

3.5.2. CAMPUS PMS

Teaching space requirements are generated by instruction type (lecture/discussion, lab) and room type classified by size (student stations) range and average area. Type of instruction can be sub-categorized by type of furniture or special equipment needed (e.g., tables, tablet arm chairs, TV, etc.). Utilization rate assumed is in terms of average hours scheduled per week. Basis of generation is weekly student class contact hours by type of instruction, derived from class sections.

Support space requirements are generated automatically for personnel resources according to user input specifications. These can be different areas per personnel type (e.g., professor, secretary, staff assistant, etc.). Types of space to be generated are user-specified.

3.6. Finance

3.6.1. College of Education

Total funds available for allocation in the college are of course constrained by the amounts allocated to the college by the central administration. The budget allocation and operation process is more complex than indicated in this brief discussion. Only those points directly relevant to the operation of a planning model will be covered.

Overall finance policy is made by the dean in consultation with the college Administrative Council, composed of the dean, assistant and associate deans, department chairmen, and the chairman of the College Council. Rationale involves historical trends, judgment and "questimates", since reorganization of the college makes evaluation of past allocation difficult. Current operations are being monitored for use in developing guidelines for future allocations. There are four major types of expenditure (expenditure objects) in the institutional budgetary system: (1) salaries, (2) other personal services (OPS -- mainly for part-time

employment, consultants, student aid, and the like), (3) expense -- supplies, telephone, travel, etc., (4) operating capital outlay (OCO -- mainly equipment such as furniture, typewriters, calculators, etc., not a permanent part of a building).

Once overall policy guidelines are established by the Administrative Council, allocations are made as indicated below.

Salaries. Salary increases are made pursuant to guidelines established by the Administrative Council and the faculty. Faculty salaries are received through the chairman of the department with which the faculty member is associated. Non-faculty (support, or Career Service) salaries are administered centrally for the college by the assistant dean.

OPS. An amount estimated by the Administrative Council for teaching overloads and adjunct instructors is taken off-the-top of the total college allocation. The dean, in consultation with affected individuals, determines amounts to be allocated for college development, colloquia, and the Centers. Allocations for graduate assistants are made by the associate dean. Allocations for student assistants (including CWSP) are made by the assistant dean, as are allocations for temporary and part-time clerical/secretarial support. Requests for graduate and student assistants and part-time support are forwarded from individual faculty, program directors, department chairmen, and other unit heads.

Expense. In general, expense is allocated by the dean in consultation with the associate and assistant deans after college fixed costs, such as basic telephone charges, have been taken off the top. Current allocation rationale is experimental due to college reorganization. Where appropriate, history was used as a basis, modified by judgment and attempts to assess impact of new organization. A fixed total is available for professional development travel. It is allocated on a percapita faculty basis to department chairmen. Travel directly associated with teaching of courses or instructional functions of an academic program is included in the general expense allocation to that program and is authorized by the program director.

OCO. Operating capital outlay is maintained in a central college account. It is allocated by the dean, associate and assistant deans, and the budget officer in negotiation with program directors, department chairmen, and other unit heads.

3.6.2. CAMPUS PMS

CAMPUS PMS accepts financial data input as defined to meet user budgetary and accounting transaction requirements. Included are faculty salaries by rank, support salaries by staff type, non-salary categories (e.g., expense, OPS, OCO), and revenues, all as defined by user. The data elements are extracted by computer from the institutional financial files and converted where necessary to fit the CAMPUS PMS input file system. This is accomplished by the CAMPUS PMS Preprocessor component.

Costs are ultimately assigned to one or more of eight categories such as instruction, research, public service, administration, etc. Two categories of revenue are allowed, such as student fees and state appropriations. The categories are defined by the user. Costs are associated with organization units as defined by the user. There is the previously-mentioned constraint, however, that a course must be owned or offered by a defined organizational unit.

3.7. Organizational Structure

3.7.1. College of Education

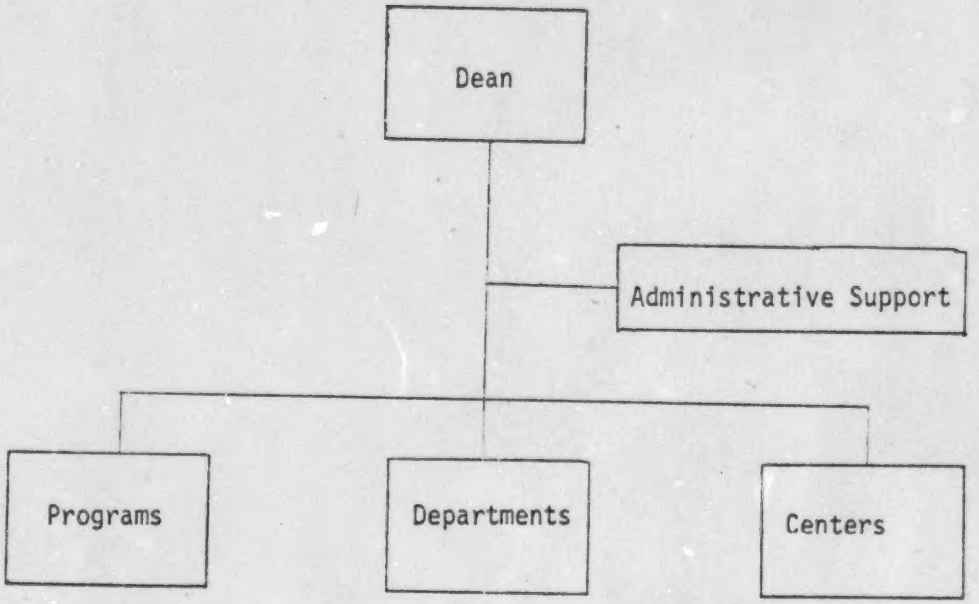
The College of Education is administratively organized into three academic systems and an administrative support system.[8] The academic systems include programs, departments, and centers. The functional relationships of the four systems and the dean is indicated in Figure 3.1.

The responsibility of the programs is to produce credentialed personnel through the operation and coordination of courses and degree programs in 11 instructional areas, plus continuing education. Faculty to teach courses for programs are supplied by the departments.

The responsibility of the departments is to (1) supply faculty of appropriate expertise and interest to program, center, and administrative operations and (2) provide professional development of individual expertise and interest to enhance the quality of resources supplied to program operations. The department is the faculty member's "home." There are four departments.

Figure 3.1.

Basic Organizational Structure, College of Education



The responsibility of the centers is to promote professional growth and development of the college. This is done through three research and development centers (one is not yet operational), the Student Personnel Office, the South Florida Educational Planning Council (SFEPC).

The responsibility of the administrative support system is for the following subsystems: (1) communications (e.g., telephones, reproduction services), (2) fiscal (e.g., budget, personnel, inventory control), (3) resource utilization (e.g., faculty and space assignments, class scheduling), (4) information (e.g., college archives, college newsletters, minutes of governance bodies), (5) support staff (e.g., recruiting/placement, training, evaluation, affirmative action).

The three academic systems and the administrative support system, along with their varous subsystems, are (or can be) uniquely identified by account number codes. Courses are an exception. They are not uniquely identified with an organizational entity. Each course is identified by an independent alphabetic abbreviation code of 3 characters and a number code of 3 characters (the latter indicating level of difficulty).

3.7.2. CAMPUS PMS

CAMPUS PMS accepts organization structure definitions as provided by the user, subject to minimal constraints. It accommodates routinely 99 "departments" 999 majors , 9 student levels (e.g., freshman, sophomore, etc.), 3 course activity levels (e.g.,lower, upper, graduate), and 3 instruction types (e.g., lecture/discussion, lab, other -- fieldwork, directed study, etc.). It accepts user definition of 7 cost centers (e.g., research, service, administration, advising, development, etc.) and 2 revenue types, and prescribes 1 cost center -- instruction. It assumes that all courses and instructional (degree, certification, in-service, etc.) programs are affiliated with, or offered ("owned") by, a "department." Many of these constraints can be circumvented through definition coding strategies.

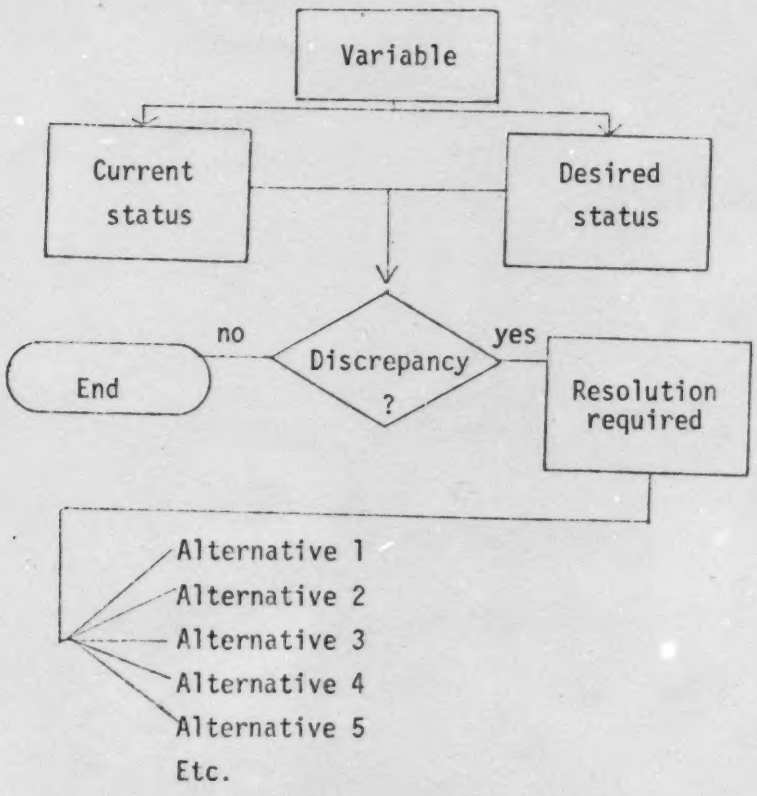
3.8. Discrepancy Analysis

Consideration of discrepancies, if any, between current status of College of Education operations and requirements imposed by implementation of CAMPUS PMS should indicate problem areas to be

assessed in determining feasibility. Discrepancy as used here means a condition of inadequacy, dissonance or incompatibility which probably would tend toward dysfunctional operation, either of the model or the college. Consideration here is limited to essentially mechanical characteristics; personnel dynamics are treated elsewhere.

The analysis takes into consideration the numerous elements of the 7 major categories already covered. Detail is omitted in the interest of brevity. If minor discrepancies appeared which could be circumvented or resolved by reasonably simple coding or definition strategies in the model, they were not considered discrepancies for purposes of this analysis.

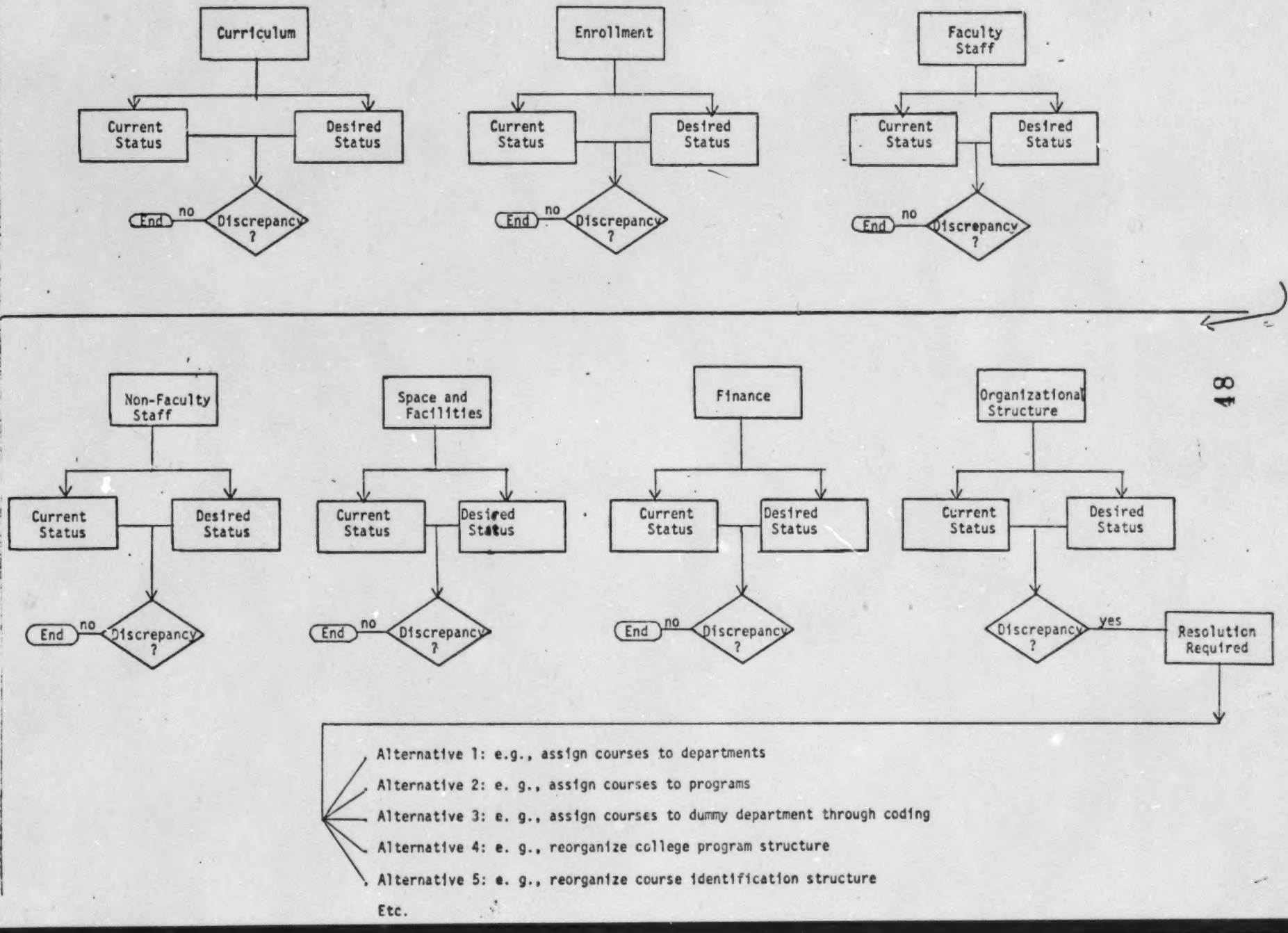
The results are summarized in a flowchart schema, Figure 3.2., which is an adaptation of the decision tree[9] and decision environment alternatives[10] diagrams. The model for the schema, which will be called a "discrepancy tree," is as follows:



A summary of results of the discrepancy analysis follows.

Figure 3.2.

Discrepancy Tree: CAMPUS PMS Requirements VS. College of Education Operations



Operational category	Discrepancy?	Remarks
Curriculum	No	Course structure is user-defined; required data available.
Enrollment	No	Projections generated automatically on base year(s) or can be specified by user; required data available.
Faculty staff	No	Faculty structure and functions are user-defined; required data is available.
Non-faculty staff	No	Support staff structure and functions are user-defined; required data is available.
Space and facilities	No	Space inventory and utilization are user-defined; required data is available.
Finance	No	Finance structure and operation are user-defined; required data is available.
Organizational structure	Yes	Model assumes courses are "owned" (offered) by departments; possibly could be remedied by dummy coding or by college assigning courses to departments or programs (see Figure 3. 2.); otherwise, structure is user-defined; required data is available.

4.0. COSTS AND OTHER CONSIDERATIONS

4.1. Costs

Costs (1973-74 dollars) associated with the CAMPUS PMS model are analyzed in terms of recurring and non-recurring. Recurring costs are those costs of personnel and physical supplies and services consumed during each budget year on a repeating basis. Non-recurring costs are those costs which are not repeated annually. They usually are capital (construction, major renovations and fixed equipment, etc.) but also include other types of costs which are of a "one-time" nature. Further, "true" costs are defined as those consumed in support of the model, whether by additional resources solely due to the model or by alternate use of existing resources. "Net" costs are defined as those which are required in addition to existing resources.

The analysis here will treat net costs to the college. Thorough analysis of true costs, while appropriate, would be too complex for the scope of this report. This is so because of trade-off factors involving alternate use of existing staff, college reorganization with resulting degradation of historical trends value, central budgeting of certain college support activities, and the like. Most of the data required for the CAMPUS model is already being collected and processed in various offices. Hence, estimates of new costs are low.

1 recurring

a) Personnel: This is difficult to estimate, since computer output (if properly designed) usually replaces a considerable amount of staff time previously spent in manual tasks. The estimate is that, once the initial implementation period is over, about 0.50 - 0.75 FTE at the junior technical (programmer/systems analyst) level is required for maintenance, coordination, and modification of input-output routines and work with the computer installation. An additional 0.25 FTE, perhaps at assistant dean level, would be necessary to supervise the operation and help "translate" problems into terms that would enable

the model to help in decisions. It is estimated that existing full-time staff can provide the required FTE at the present time. Part-time support, student assistant, is estimated at 44 weeks, 8 hours per week, $2.50 per hour, or $880. Recurring personnel net costs. . .$880
b) Other: expense for special supplies -- IBM cards, keypunch forms, etc. net costs $200
(Note: Charges for computer use are not made against the College. A central budget supports the Computer Center. This may change in the future.)
Total recurring net costs $1,080

2 Non-recurring

a) Personnel: For approximately the first 3-4 months, intensive implementation activity requires a full time junior technical level person for programming/systems analyst tasks, with supervision by someone familiar with the model. It is estimated that existing staff can be diverted to support this requirement. In addition, one graduate assistant at 20 hrs./week should be available for assistance during this initial set-up period. One graduate assistant, 20 hrs./week for 12 weeks, $3.50/hr., net cost (OPS) $840
b) Other: Expense for extra toll telephone charges for minor consultation with Systems Research Group and other CAMPUS users, net cost (Expense) $100
c) CAMPUS PMS model: Purchase price of system, including softward components, documentation, management and technical orientation seminars and assistance (6 man-days on-site), net cost $5,000
Options as to object classification of the cost appear

to be available. Systems Research Group estimates that of the $5,000, $3,000 - $3,500 is for software system and $1,500 - $2,000 is for technical consultant personnel providing on-site assistance in setting up the system. Thus, $3,000 - $3,500 could be classified as OCO, and the corresponding $2,000 - $1,500 could be classified as OPS. There is also the possibility that the total $5,000, as a contracted arrangement, could be classified as Expense; or the $3,000 - $3,500 portion might be classified as Expense.

d) Additional consulting, first year contingency: It is possible that additional consultation would be required during first year of operation. Estimate is 10 man-days at $355/day (includes travel and expenses). Contingency net costs $3,550

Total non-recurring net costs, first year $9,490

Recapitulation: anticipated net costs . . $5,940
contingency net costs . . $3,550
$9,490

e) Additional consulting, second year contingency: Consulting may be needed during second year of operation for final phase-in problems, revisions, etc. Estimate is 5 man-days at $355/day. Second year contingency net costs $1,775

4.2. Other considerations

There are factors to consider other than technical provisions of a model, its requirements compared to current operations and its costs. Failure to do so could jeopordize full realization of benefits of implementation. Some of the main factors are mentioned here.

4.2.1. Organizational personnel dynamics

There is a tendency to consider economic reward to be the main incentive to productive performance in most organizations. Elbing [11] reminds us, "These are not unimportant to the professional, but -- provided economic rewards are equitable -- other incentives become far more potent." Other rewards such as

full use of talent and training, professional recognition, and opportunity for continued learning development are sought. A desirable professional environment is where one will work not only to satisfy organizational requirements but to fulfill self-imposed demands.

Administrative/management tools such as planning models, if they are to be fully effective, must not interfere with the development and maintenance of rewarding human systems which integrate individual needs and organizational objectives. The CAMPUS model should not cause problems in this connection if implementation proceeds in phases which allow maximum productive participation and communication by all who might be affected. Familiarization, training, and involvement are key considerations.

4.2.2. Availability of competent staff

An undertaking of the complexity of computer planning/modeling systems requires certain staff with technical and analytical skills. To the degree that such skills are lacking, there must be basic abilities which through training can reach the required level of expertise. In addition, time for such training must be made available.

It is considered that the necessary expertise and basic abilities existing in the college (and the Computer Center), along with the technical assistance provided with the CAMPUS System, meet this requirement.

4.2.3. Adequacy of management information systems

Management information systems of adequate accuracy, detail, and flexibility are essential to the effective functioning of planning models. The operational data systems at USF, combined with the basic file conversion component of CAMPUS, are sufficient foundations to meet this requirement. Some adjustments and additions might be called for, but they are essentially minor compared to the overall system.

4.2.4. Indirect benefits

A planning model hopefully would provide some indirect benefits to the organization. Among these are better management control at all levels, more-informed decisions on alternative courses of action, and more efficient use of resources while maintaining or improving quality of programs.

By assembling many facts about costs and revenues and their relationships to enrollment, programs, staffing, inflation trends, etc., models can provide a background for evaluation of the results of the college's activities. A model may: force decision-makers to be more explicit in formulating characteristics of alternative policies to be explored, be a convenient and utilitarian device around which data can be organized, point out weaknesses or inefficiencies in existing policies and plans, enable managers to be better prepared for certain uncontrollable eventualities, be a focal point for building formal planning and budgetary procedures. The CAMPUS model and the requisite supporting management information system, when used with imagination and ingenuity, can provide many useful indirect benefits.

4.2.5. Implementation experience

The extensiveness of implementation of a planning model is an important consideration. The experience gained by other users is a source of valuable information in assessing suitability of a model to a particular institution's needs. The CAMPUS PMS model, according to information supplied by Systems Research Group, is in operation in 9 colleges and universities. Some information based on those operations has already been obtained, and informal agreement to supply additional information has been made. One important source has agreed to supply information based on a study of extensive application of the model. This information should be available about the end of December, 1974. An additional source of information on CAMPUS has been a consultant with extensive experience in the application of various CAMPUS models.

The SDL Systems Research Group, Toronto, Canada, performed the basic research on CAMPUS in 1964 for the Commission on the Financing of Higher Education in Canada. A pilot model, CAMPUS I, was applied at the University of Toronto in 1965. Development and refinement of various versions of the models have continued since that time through implementations at institutions including health science centers, universities, community colleges, and public school systems. In summary, the experience and reliability of the models seem to have been well tested over a period of about 10 years.

5.0. RECOMMENDATIONS

This section includes recommendations concerning adoption of the CAMPUS PMS model and the feasibility criteria on which the recommendations are based.

5.1. Recommendations

1 The CAMPUS PMS model should be adopted

a) The particular version adopted should be CAMPUS IX.

b) Adoption should be during the 1974-75 fiscal year.

c) Implementation (including formal negotiations with SDL Systems Research Group) should await conclusion of Quarter 1, 1974. This is because it is anticipated that, during December, 1974, a survey will be completed covering simultaneous operation of the model in several institutions with diverse programs in another state. Informal agreement has been made to supply information based on that study. It is expected to indicate preferred options regarding such details as input definitions, coding strategies, preferred consultation alternatives needed from Systems Research Group, and any peculiar, unexpected operational problems. This information would be of value in establishing contract details for purchase and implementation of the model. It would also augment the body of knowledge already obtained by Systems Research Group from installations in various other institutions.

d) Funds for purchase should be sought from the university administration which would be in addition to the normal allocation to the College of Education. This is reasonable because college operation of the model could serve as a prototype for other colleges of the university or for the entire university.

e) Purchase should be by carefully designed and detailed performance contract.

2 A planning group should be formed

The purpose of the group at first would be to oversee the trial implementation of the model. After that period, the group could address itself to the several dimensions of long range college planning. An especially important responsibility of the group should be facilitation of communications, formal and informal, among the various functional and structural components of the college.

3 Implementation should proceed in phases

Special emphasis is placed on the phase-in aspects to provide for orderly and productive implementation. Details are beyond the scope of this report and depend on several variables, such as duration of negotiations with Systems Research Group, any modification of college organization structure and function, etc. Nevertheless, a few time frame guidelines can be recognized.

a) Approximately one term should be allowed for "setting up" -- technical aspects such as matching model codes and definitions to institutional operational data files, establishing definitions, experimenting with output report formats, making experimental computer runs, etc. In summary, making the model work from a technical standpoint.

b) During the second term after initial implementation, in-service training and familiarization sessions should be established for appropriate college personnel at all levels and types of involvement. Some of this training could probably begin during the first or setting-up phase. (It is assumed that necessary training involving those directly associated with technical operation of the model will have begun from the time of initial implementation.) Suggestions for revision, modification, etc., will likely emerge from the in-service training sessions.

c) During the third term after implementation, synthesis of knowledge and ideas gained from the first two phases can be accomplished. A program of evaluations should begin. Additional in-service training and familiarization may be required. The latter is extremely important. Only when all personnel affected or involved actively participate in planning, application, and evaluation is that success likely which comes from harmonious and integrated personal commitment to common objectives.

d) The fourth phase of trial should comprise about three terms of operation. New modifications either of the model or college operations may be suggested by evaluation. During this phase attention should be given to designing additional analytical reports for college planning and management use at various operating levels. These reports would be beyond those routinely provided by the model. They would be possible because of the management information system refinements and data conversions flowing from use of the model.

5.2. Criteria of feasibility

The following criteria served as a basis for examining the various elements of the CAMPUS model and their relationship to current operating and structural patterns of the college.

5.2.1. Administrative/management use

1 Enrollment forecasting

The extent to which the model contributes to the enrollment projection or forecasting process.

2 Academic/curriculum planning and design

The extent to which the model can contribute to the academic/curriculum planning and design process.

3 Staff planning

The extent to which the model can contribute to the estimation of future faculty and support staff requirements.

4 Physical facilities planning

The extent to which the model contributes to estimation of future space requirements.

5 Financial planning and budgeting

The extent to which the model contributes to cost projections, budget allocations, and revenue estimates.

6 Indirect benefits

The extent to which the model can contribute to helping the organization "run better" in achieving its objectives. This includes such aspects as better management control, more informed decisions on alternative courses of action, and more efficient use of resources -- while maintaining or improving quality of programs and without sacrificing the humanistic dimensions of administration or management at all levels.

5.2.2. Technical characteristics

1 Model dimensions

The amount of reporting detail, or system dimension values, available and computer capability necessary to support the model.

2 Adaptability and flexibility

The extent to which the model can be adapted to institutional characteristics and can accept future modification.

5.2.3. Implementation considerations

1 Extent of use

The extent to which other institutions are using the model.

2 Cost and time to implement

The cost of implementing the model, assuming costs are to be funded by the regular institutional operating budget.

3 Availability of staff

The extent to which staff with appropriate skills are available to assist in preparing for, installing,

and operating the model.

4 Impact on the organization

The extent and type of impact of the model on organizational structure and personnel dynamics.

6.0. REFERENCES

1 University of South Florida, USF Bulletin: Accent on Learning 1973-74, Vol. 15, No. 3 (March, 1973), p.8.

2 Seven Year Program Plans 1974-1981, a report submitted to the Vice President for Academic Affairs by the College of Education, University of South Florida, May, 1974, pp. 2-3.

3 Lahti, R. E., "Management by Objectives," College and University Business, July, 1971, pp. 31-33.

4 Shoemaker, William A., Systems Models and Programs for Higher Education, Washington, D.C.: Academy for Educational Development, 1973.

5 Hitt, William D., Education as a Human Enterprise, Worthington, Ohio: Charles A. Jones, 1973.

6 A Comprehensive Set of Questions on Policies and Plans for the College of Education, University of South Florida--A Tool for Governance and Management, a report prepared by the College of Education Committee on Analysis of College Needs, Services, and Resources, June, 1973.

7 Information in this section is largely based on materials provided by Systems Research Group, Toronto, Canada. Separate citations will not be used.

8 Organizational Analysis, College of Education, University of South Florida, October, 1973.

9 Enrick, Norbert L., Decision-Oriented Statistics, New York: Brandon/Systems Press, 1970, p. 111.

10 Easton, Allan, Complex Managerial Decisions Involving Multiple Objectives, New York: Wiley and Sons, 1973, p. 18.

11 Elbing, Alvar O., Behavioral Decisions in Organizations, Glenview, Ill.: Scott, Foresman and Co., 1970, p. 688.

7.0. APPENDICES

7.A. Implementation steps

There is an orderly sequence of steps that should be followed in implementing the CAMPUS PMS model. Most of them will occur during the initial phase-in period. However, modifications can be made during any phase-in period.

1 Data element definition and file creation begins with checking data elements to suit the user and starting the process of filling new (CAMPUS PMS) files with base year data.

2 Definition of organization structure and operating policies is the process which loads the necessary definitions of organization unit names, cost center codes, and various policies such as class size, teaching load, space allocation rules, etc.

3 Initial runs of the system use the pre-processors to induce output from the components OAS, CAS, CAMPUS IX, and in some cases the Budget Review System. The first operation is to feed data from the basic files through the pre-processors.

4 Editing and correcting runs begins with the pre-processors. If these are incorrect, the other components will mal-function. The data base is edited and the entire system made ready for practical use. This process usually covers (1) peculiarities requiring changes in some of the parametric data and (2) input errors.

5 Integration with the planning and budgeting process occurs after the base year data is run and tested. It involves entering 1 or more scenarios of the future so that the simulator (CAMPUS IX) can project the implications of various alternatives to construct arrays of different futures.

7.B. Basic institutional operating files

These are transaction type files used in regular institutional operations. Not all data elements existing in the files are listed. There is some data overlap between files. Descriptions are omitted where data element is self-explanatory. Files are grouped for

maintenance and coordination by computer center staff with responsibility by category as follows: personnel and payroll system; student records, admissions, and space systems; finance/accounting and scholarships/financial aids systems; planning system; library system. File titles used here are not necessarily the official USF file names.

DATA ELEMENT/NAME	DESCRIPTION
Course	
College code	code for each USF college
Course prefix	alpha course prefix
Course number	three-digit course number
Campus code	indicates Tampa and branch campuses; continuing education
Section type	mass lecture, regular class, lab
Course suffix	subdivisions of courses with same prefix and number but with different titles or class hours.
Section number	three-digit class section number (4 digits available)
WICHE code	national common discipline code
Course reference number	unique 4-digit code assigned to each section of each course
Course capacity	maximum number of students to be scheduled in the section.

Number of requests	number of students who have requested the section.
Seats remaining	capacity less requests
Sex restriction	indicates any sex restriction of the section
Day/time pattern	indicates meeting times
Credit hr. -low range	credit hr. of course; if variable credit, lower limit of allowed hr.
Credit hr. -upper range	maximum allowed hr. for variable credit course
Contact hr.	number of instruction hr./wk.
S/U grade flag	indicates whether satisfactory/ unsatisfactory grade allowed
Audit grade flag	indicates whether audit grade allowed
Credit-by exam flag	indicates whether credit by exam allowed
Part of term indicator	part of term this section meets -- both halves, 1st, or 2nd half

Course comment	course comment which appears in class schedule
Course title	alpha title of course
Team code	code assigned to course having more than 3 instructors
Instructor name	
Instructor's SSN	social security number of instructor (up to 3)
Percentage shared	for team instructors the % load of contact hr. attributed to each instructor.
Supplemental hours	class meeting hr. in addition to regular contact hr.
Special fees	any special fees associated with the section
Day of meeting	day of class meeting (no meeting; Mon-Sat.)
Begin time	class beginning time (24 hr. clock)
Ending time	class ending time (24 hr. clock)
Building	building in which class meets.)

Room	room in which class meets
Type of room	classroom; lab; other
Meeting location	indicates location of continuing education class meeting
Beginning period	USF class period code--beginning period of the class meeting.
Ending period	USF class period code--ending period of the class meeting.

Student

social security number	
Name	
Sex	
Marital status	
Ethnic	for HEW purposes: race
Nation of citizenship	
US state	
County (Fla.)	Florida residents only
Fee classification	Fla., non-Fla., alien, resident alien, etc.

Fee waiver	indicates reasons for waiver
Church preference	
Date of birth	month, day, year
Matriculation date	date of first creation of record for credit enrollment
Matriculation level	indicates beginning freshman, transfer from Fla. jr. college, off-campus, other level transfers (graduate, undergraduate, etc.)
Class level at matriculation	
Major (program) at matriculation	
College at matriculation	
Selective service number	
Emergency addressee	address, phone number, and relationship of person to contact in case of emergency
Student permanent address/phone	
Student local address/phone	
Student parents address/phone	

FTGT	percentile rank of scores, Fla. 12th grade test program, in aptitude (verbal and quantitative), English, social science, natural science, math, reading index, psychology, total
FTGT date	month and year test taken
CEEB	Scholastic Aptitude Test scaled scores, verbal and quantitative
CEEB date	month and year test taken
SCAT (college level)	School and College Achievement Test raw scores and percentiles -- verbal, quantitative, total-- type and level of norms used.

Graduate exams	various graduate and professional school admissions test raw scores and percentiles -- verbal and quantitative
Graduate exams date	month and year test taken
GRE	Graduate Record Exam scores, verbal, quantitative, total
GRE date	month and year test taken
GRE - advanced	GRE scaled scores by subject area
GRE - advanced date	month and year test taken
ACT	American College Testing program scores
ACT date	month and year test taken
CQT	College Qualifications Test scores and percentiles -- verbal, quantitative, total
Special certification	codes and ID numbers for special conditions, e.g., child of deceased veteran, social security benefits, etc.

Application date	month, day, year of application
Admission status	codes indicating status of application -- admit, postponed, future action required on transcript, test scores, etc.
Final action	type of admission action -- admit, cancel, deny
Final action code	reasons for final action
Last institution attended	name of college, university, or high school prior to application to USF
Location of last institution	city and state
Level of last institution	high school, 2-yr., 4-yr., etc.
Last institution code	national FICA institution code
Last institution hr/cr	hours attempted, accepted for transfer, and grade points for hr attempted
Last institution hr. pass-fail	number hr. passed under pass-fail; may be used for credit by exam, CLEP, advanced placement, etc.

Last date of attendance	month and year last term began at last institution
Level degree received	degree received from last institution attended
High school class size	number of seniors in students' graduating class
Rank in high school class	
High school graduation date	month and year
High school GPA	
High school code	national FICA code
High school code	Fla. code within county
High school county code	Fla. county code
Housing status	codes for various campus housing application statuses
Registration date	month and year registered after admittance
Type student at registration	same as for matriculation level, except add former student returning and skip
Degree seeking status	
Registration status	

Current term date	month and year
Current term and year	quarter and year
Current class level	
Current major	
Current college	
Next term class level	class level as defined by hr. completed; also non-degree code
Next term major	
Next term college	
Current load - night	current load -- in credit hr.
Current load - graduate	
Current load - C/E graduate	
Current load - C/E undergraduate	
Current load - total	
Benefit load - night	benefit load -- in credit hr. (for VA use)
Benefit load - graduate	
Benefit load - C/E undergraduate	
Benefit load - total	

Current hr. attempted - S & U	
Current hr. attempted - non S & U	
Current hr. passed	
Current grade points	
Current GPR	
Cumulative hr. attempted - S & U	
Cumulative hr. attempted - non S & U	
Cumulative hr. passed	
Cumulative grade points	
Cumulative GPR	
Date record last updated	month, day, year
Withdrawal date	month, day, year
Withdrawal count	
St. Pete code	
Employee code	
Highest degree received	
Date of highest degree	month and year

Institution of highest degree	
Graduating senior code	applies to USF seniors
Major field of studies	applies to USF seniors
Health code	medical status data
Fraternity/sorority code	
Probation status code	
Financial aid employee code	
Financial aid scholarship	
Financial aid loans	
Campus housing address	

Space Inventory

Campus code	indicates main & branch campuses
Building name	abbreviation of building name
Room number	
Building number	
Quadrant	main campus quadrant in which building located

Department number	number of department responsible for the space
Budget entity code	budget code for state reports
Department function code	function code for state reports
Department name	abbreviation of department name
Program code	HEGIS Program
Room size	square foot area
Room capacity	number of student stations
Room use code	code to indicate primary use of the room (classroom, lab, office, etc.)
Function code	code to indicate primary function of the room (teaching, research, etc.)
Air conditioning	is room air conditioned?
Television conduit	is TV available in room?
Blackboard	linear foot of blackboard
Number of walls with blackboard	
Seating type	codes for type of seating (tablet arm, fixed, tables, etc.)

Staff and Payroll

Personal Record

Social security number	
Name	last, first, and middle name or initial
Home address	
Home phone	
Campus location	building and room number
Campus code	Tampa or branch campus
Campus mail address	building and room number -- mail point
Campus phone	
Mail label selector	code which indicates employee group for mass-mailing purposes -- teaching and research, career service, chairman, etc.
Birthdate	month, day, year
Sex	
Race	for HEW purposes
U. S. citizenship	yes or no

Marital status	
Total % employed	total FTE appointment from all departments
Hours scheduled/week	total scheduled hr. of work/week
USF employment date	first employment of any nature at USF -- month, day, year
Permanent status date	date of line item employment -- month, day, year
Termination date	date of termination from USF employment -- month, day, year
Reason for termination	code for reasons such as dissatisfaction with work/pay/ working conditions/job location, military, pregnancy, dismissal, retirement, layoff, death, return to school, etc.
CWSP maximum earnings	applies to students on CWSP employment program
Tax bracket	marital status for withholding tax purposes -- single, married
Number of dependents	exemptions claimed on W-4 form
Retirement plan	code for retirement plan of employee

Retirement percent	percent of salary contributed to retirement
USF BCBS-MM insurance control	code for employee's medical insurance plan -- various options, etc. -- old USF ; program
Life, professional, life/ dismemberment deduction	amount of deduction for the 3 insurance plans
Disability insurance	type code and amount
State BCBS-MM insurance ref. code	code for type of state medical insurance coverage
Year-to-date (YTD) elements	numerous items covering payments, deductions, etc. for calendar year to date
Fiscal YTD elements	numerous items covering payments, deductions, etc., for fiscal year to date

Department Record

Department number	each organization unit has a unique numeric code -- used for identification and accounting purposes
FTE	% employed in this department

Line item number	indicates line item number on which is placed for pay; checks to determine if line item is in budget file
Overload code	indicates paid overload for teaching and research personnel
Pay code	hourly or salaried
Appointment status	career service employee codes -- probationary, permanent, temporary, OPS, trainee, etc.
Transaction type	codes for such as: original appointment, reassignment, demotion, promotion, transfew (voluntary and involuntary), etc.
Occupational code	indicates (1) personnel type -- administrative and professional, career service, teaching and research, student assistant, graduate assistant, adjunct, etc., (2) employee title compared to line item title -- filled in or out-of-class, temporary, etc., (3) HEW job code, (4) USF classification code -- faculty rank, chairman, dean, secretaries, clerks, etc.

Effective date of occupational code	month, day, year of latest change in classification
Maximum scheduled hours	input for all salaried and hourly personnel
Number of biweekly periods	number of periods to be paid in fiscal year
Number of contract months	input for all line item personnel
Appointment begin date	effective date for latest dept. transaction -- month, day, year
Appointment end date	required for all personnel not on 12 month contract -- month, day, year
Gross salary rate	used to determine biweekly pay
Effective date of salary rate	required for each change in rate -- month, day, year
Biweekly rate	biweekly pay
Hourly rate	required for all hourly and salaried personnel (non-exempt from wage and hour law)
Employment states	indicates active probation, leave of absence, tenured, non-tenured, emeritus, etc.

Employment status effective date	date of latest transaction -- month, day, year
Leave of absence end date	month, day, year
Tenure effective date	date tenure became effective -- month, day, year
Anniversary date	month, day -- for experience purposes
Probation end date	career service only -- month, day
Student level	code for academic level and skill of student employees
Student code	code for type of work assignment of student employees
WICHE code	code indicating common program classification of line item employees -- instruction, research, service, academic support, etc.
County code	county in which employee's base of operations lies
Hours annual leave	numbe of leave hours employee to be paid for at termination
Additional compensation	additional pay to career service employee for certain conditions of work

Additional compensation code	code for reasons for added compensation -- lead worker, hazardous amount, shift differential, or combinations thereof

Budgetary/Revenue Ledgers

NOTE: These systems are too complex to present in detail here. Only basic major elements are listed.

Account number and fund number	keys to systems entry; each organization unit (dept.) is assigned a unique account number; fund number is related to revenue
Appropriations to date	allocations or releases to dept. account number -- month-to-date for each month and year-to-date for fiscal year -- for expenditure classifications: Salaries, OPS, Expense, and OCO
Encumbrances to date	purchases or obligations by account number which have not yet been paid -- classifications as in appropriations; year and month-to-date totals
Expenditures to date	actual disbursements -- same accounts, times, and classifications as in appropriations and encumbrances

NOTE: In the Grants, Auxiliaries, and Agency budgets, "revenue" simply updates the "appropriations" field of the budgetary ledger.

Library
Circulation

Library of congress call number

Borrower social security number

Borrower code

Due date

Date checked out

Date returned

Fee amount

Campus code

Number of days overdue

Acquisition

Fund number

Fund title

Allocation amount

Date created

Encumbrance amount

Paid amount

Unencumbered balance amount

Purchase order number

Library of congress call number

Library of congress card order number

ISBN number

Author

Title

Series

Publisher Name

Year Published

Edition

Number of Volumes

Vendor number

Vendor name

Order date

Status code

Encumbrance code

Encumbrance post date

Number of copies

Estimated price

Payment code

Payment post date

Invoice date

Invoice number

Delivery date

Payment amount

Postage amount

7.C. Miscellaneous current reports

This sample list is not all-inclusive. The reports are mainly for the Board of Regents and relate to enrollment and students. Similar reports on other categories of data are also prepared by the institution.

TITLE OR DESCRIPTION

Enrollment by college (student level, sex, residency, course load dr. hrs.)

Summary of credit course FTE by college, undergraduate and graduate

Continuing education (CED) enrollment (700 sections-headcount, cr. hrs., FTE by level, residency and sex)

Degrees conferred by program (also hegis degrees conferred by sex within program), qtrly. annual

Continuing education by subject field (700 sections) and class location

Alpha course section size by prefix (all courses/all students by level and section summary totals), undergraduate and graduate

College course section size (all courses/all students by level and section summary totals), undergraduate and graduate

St. Pete (separated) college course section size (600 sections only), same data as above

Cooperative education enrollment (all "COE" prefixes except 071, 400, and 401)

Staff fee waivers-course level by college (six credit hrs. or less code "E" in enrollment file)

Staff fee waivers under senate bill #1049 by college

New student transfer (instate/outstate, public/private-by student level and sex)

New graduate student transfer (instate/outstate, public/private-by student level and sex)

Course audits by section, course no. and prefix

USF statistical summary, 13 categories of data

Student load distribution of on-campus credit hours (frequency distribution by hours of load)

Student and course level BOR FTE by WICHE discipline within special groups (Tampa, St. Pete, CED)

HEW compliance report

Headcount students by age, sex, fulltime, parttime (undergraduates and graduates)

Headcount students by new, continuing, returning, by level and major

Headcount audit of student majors by college, level, sex

Student and course level BOR FTE by discipline within course, college

Origin of admissions applications accepted and registered (county if Florida resident, others state or country)

Origin of all students currently enrolled